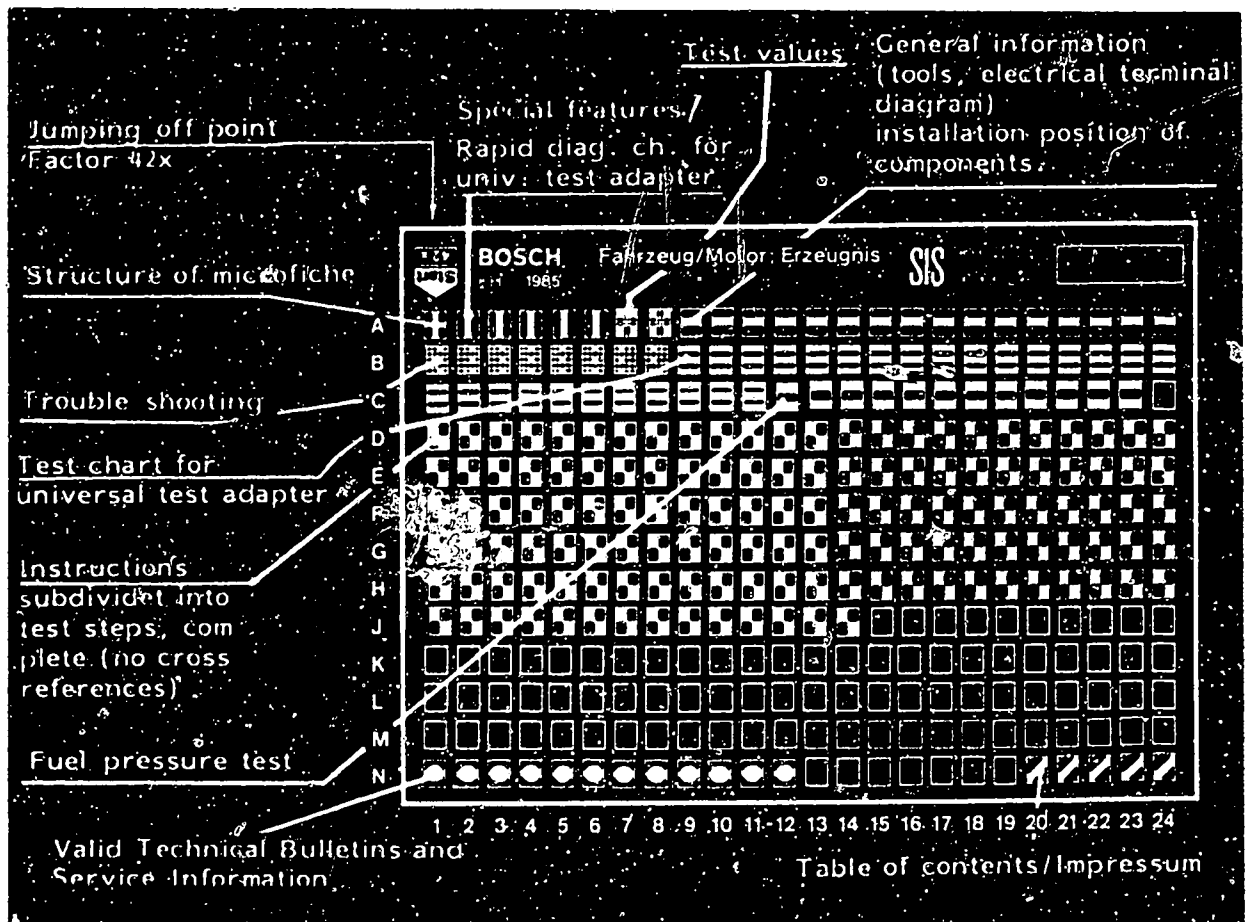


Structure of microfiche



1. Read from left to right
2. Title of microfiche (appears on each coordinate)

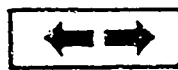
E16	Product/component/test step
	Vehicle/engine

Coordinate

3. Limits of section



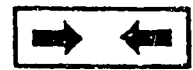
Beginning



Mid-section



End



One-page section

4. Purely vehicle-specific passages in the text are marked with a vertical bar.

5. Reference to relevant working steps in the test specifications, e.g. coordinate C6.

C6

A1

Trouble-shooting program



SPECIAL FEATURES

- LU version of the L-Jetronic, with 25-pole control unit, 5-pole air-flow sensor, 7-pole control relay, and electric fuel-injection valves with brass wire coil.
- Electric fuel-injection valves with O-ring connectors
- Auxiliary relay for electric fuel-injection valves and control unit
- Pre-supply pump
- Charge-air pressure switch
- Full-load information from the ignition control unit
- Pressure sensor for altitude correction
- Overrun cutoff suppression by means of a +40°C temperature switch and relay
- Heated lambda sensor for lambda closed-loop control and 3-way catalytic converter
- coding for California and federal models

RAPID DIAGNOSTIC CHART FOR THE UNIVERSAL TEST ADAPTER

The rapid diagnostic chart below makes it possible for the experienced L-Jetronic expert to check quickly the electrical portion of the system using the universal test adapter.





The rapid diagnostic chart includes the following information:

- Sequence of test steps
- Setting of the V and Ω program switches
- Notes on the operation of the universal test adapter or other components
- Test specifications for the motortester and multi-meter
- References to the coordinates for the pertinent detailed testing and trouble-shooting program.

If detailed information and instructions are required, proceed in principle according to the trouble-shooting starting from Coordinates B1/B2.



Rapid diagnostic chart for the universal test adapter

Test step	Switch setting		Measurement	Remarks	Test specifications (reading)	For trouble-shooting see Coordinates
	V	Ω				
1	5	-	TN signal from the electronic ignition K-control unit Term. 17. Control unit plug between Terminals 1 and 5.	Shift into neutral, start the engine.	Rectangular pulses on the oscilloscope	B.11
2	6	-	Voltage from auxiliary relay Term. 87. Control unit plug between Terminals 9 and 5	Switch ignition on	8 ... 15 V	B 13
3	7	-	Voltage from starting motor Term. 50. Control unit plug between Terminals 4 and 5	Shift into neutral the engine	8 ... 15 V	B 15
4	8	-	Voltage from the altitude sensor Term. 11. Control unit plug between Terminals 11 and 5	Switch ignition on. At air pressure: 980 mbar (\sim 300 m elevation) 615 mbar (\sim 4000 m elevation)	2.0 ... 4.0 V 8.0 ... 12.0 V	B 17
5		11	Resistance of temperature sensor NTC I in the air-flow sensor, Term. 8. Control unit plug between Terminals 8 and 5	---	150 ... 400 Ω	B 19
6		12	Resistance of the potentiometer in the air-flow sensor, Term. 7. Control unit plug between Terminals 7 and 5.	Deflect the air-flow sensor flap as far as the stop.	60 ... 1000 Ω	B 21
7		13	Resistance of temperature sensor NTC II, Term. 10 (engine temperature). Control unit plug between Terminals 10 and 5.	+15°C ... +30°C: +80°C:	1.45 ... 3.3 k Ω 280 ... 360 Ω	B 23
8		14	Resistance, ground - output stage Term. 13. Control unit plug between Terminals 13 and 5.	---	0 ... 10 Ω	C 1

A3

Rapid diag. chart f. univ. test adapter
Peugeot 505 Turbo



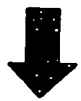



A4

Rapid diag. chart f. univ. test adapter
Peugeot 505 Turbo



Rapid diagnostic chart for the universal test adapter (continued)

Test step	Switch setting		Measurement	Remarks	Test specification (reading)	For trouble-shooting see Coordinates
	V	Ω				
9		16	Resistance of the idle contact in the throttle-valve switch Term. 2. Control unit plug between Terminals 2 and 9	Accelerator pedal in at rest position: Step down lightly on the accelerator:	$0 \dots 10 \Omega$ $\infty \Omega$	C 3
10		16	Resistance of the charge-air pressure switch. Control unit plug between Terminals 2 and 9.	Step all the way down on accelerator: In addition, subject charge-air pressure switch to 1.5 bar gauge press.:	$\infty \Omega$ $0 \dots 10 \Omega$	C 5
11		17	Resistance of the full-load output Term. 18 of the elec. ignition K-control unit. Control unit plug between Terminals 3 and 9.	---	$1.5 \dots 2.5 \text{ k}\Omega$	C 7
12		18	Resistance of all 4 electric fuel-injection valves connected in parallel, Term. 12. Control unit plug between Terminals 12 and 9.	---	+20°C: $7.0 \dots 9.5 \Omega$ +80°C: $7.2 \dots 10.0 \Omega$	C 9

Note:

The following components and the leads for them are not measured by the universal test adapter in this rapid diagnosis:

- | | | |
|---|------------------|-------------------------------|
| 1. Auxiliary-air device | Connecting leads | 26 and 72 |
| 2. Electric starting valve | Connecting leads | 30 and 4/2 |
| 3. Thermotime switch | Connecting leads | 30, 29 and ground connection. |
| 4. Control relay | Connecting leads | 59/1, 60, 57, 56 |
| 5. Electric fuel pump | Connecting leads | 28 and 61 |
| 6. Pre-supply pump | Connecting leads | parallel to 28 and 61 |
| 7. Lambda sensor heater | Connecting leads | 73 and 74 |
| 8. Sensor lead | Connecting leads | 20 and shield |
| 9. Relay for overrun cutoff suppression | Connecting leads | 18, 50, 51, and 52 |
| 10. +40°C temperature switch | Connecting leads | 52 and ground connection |
| 11. t_v coding | Connecting leads | 19 and 71 |

A5

Rapid diag. chart f. univ. test adapter
Peugeot 505 Turbo



A6

Rapid diag. chart f. univ. test adapter
Peugeot 505 Turbo



TEST SPECIFICATIONS

Pressure regulator

- Fuel pressure 2.8...3.2 bar

Electric fuel pump

- Fuel delivery (measured in the return): min. 750 cm³/30 s
- Connecting voltage (under load): min. 12 V

Thermotime switch (35°/8 s):

• Internal electrical resistance at	Between Term. "G" and ground	Between Term. "W" and ground	Between Term. "G" and "W"
Ambient temperature (less than +30°C)	25...40 Ω	0 Ω	25...40 Ω
Engine at normal operating temperature (above 40°C)	50...80 Ω	100...160 Ω	50...80 Ω

Electric starting valve

- Internal electrical resistance: 3.5...4.5 Ω
- Max. allowable leaks: 1 drop per min.

Auxiliary-air device

- Internal electrical resistance: 20...55 Ω

Temperature sensor II (engine)

- Internal electrical resistance at
Ambient temperature (+15°...+30°C): 1.45...3.3 kΩ
Engine at normal operating temperature (approx. +80°C): 280...360 Ω

Electric fuel-injection valve (at +20°C)

- Internal electrical resistance: 15.0...17.5 Ω

Charge-air pressure switch

Resistance

- at atmospheric pressure: ∞ Ω
- at 1.2...1.5 bar gauge pressure: 0 Ω

Lambda sensor heater

- Internal electrical resistance (PTC): 1.0...10.0 Ω



Air-flow sensor

- Resistance between

Term. 8 and Term. 5:	340...450 Ω
Term. 7 and Term. 5 (deflect air-flow sensor flap all the way)	60...1000 Ω
Term. 9 and Term. 5:	500...760 Ω
Term. 8 and Term. 9:	160...300 Ω

Pressure sensor (altitude sensor)

300 m elevation (977 mbar):	2.0...4.0 V
4000 m elevation (616 mbar):	8.0...12.0 V
Resistance between Term. 2 (-) and Term. 3 (+):	2.3...2.5 k Ω

Idle adjustment (engine at normal operating temperature, approx. +80°C)

- Idle speed: 850...950 min⁻¹
- CO adjustment via lambda closed-loop control operation (sensor connected): Reading for voltage fluctuates between two values
- Open-loop control operation (sensor lead taken apart): Reading for voltage must be equal to the average of fluctuations.

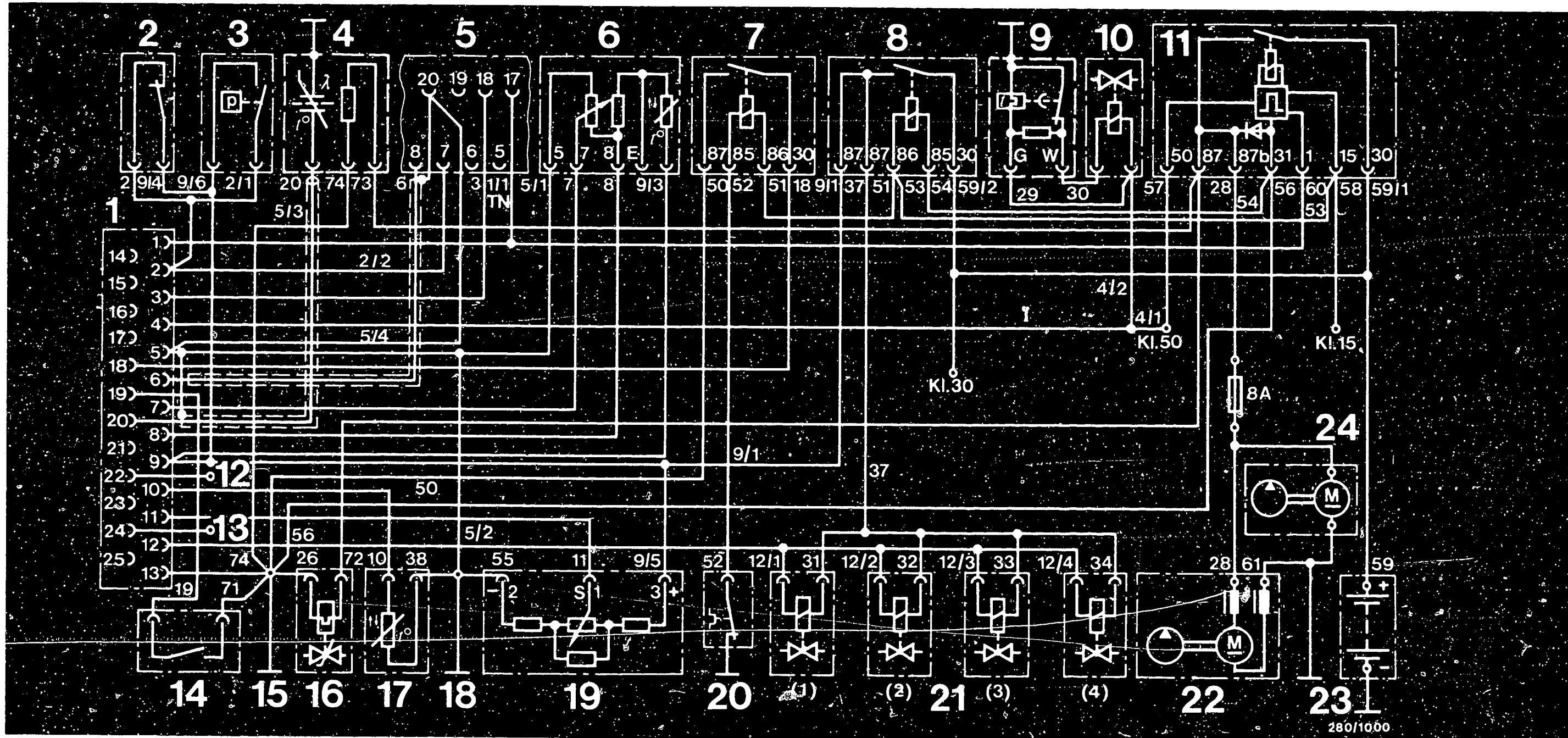
Lambda closed-loop control

- Rich value (take sensor lead apart and ground on the control unit end): 9...11 V
- Lean value (apply 2 V to the control unit end of the sensor lead): approx. 0.5 V

Switch the suction plant off for the duration of measurement and adjustment on the exhaust system.

For settings for ignition, valve clearance, and other engine data, see the Equipment and Autodata Microfiche.





ELECTRICAL CONNECTION DIAGRAM

- | | | | |
|--------------------------------------|--|---|-------------------------------------|
| 1 = Control unit plug | 8 = Auxiliary relay | 14 = t_v coding | 20 = +40°C temperature switch |
| 2 = Idle throttle valve switch | 9 = Thermotime switch | 15 = Ground terminal, output stage | 21 = Electric-fuel-injection valves |
| 3 = Charge-air pressure switch | 10 = Electric starting valve | 16 = Auxiliary-air device | 22 = Electric fuel pump |
| 4 = Heated lambda sensor | 11 = Control relay | 17 = Temperature sensor II (Engine temperature) | 23 = Battery |
| 5 = Ignition control unit | 12 = Test pin, integrator (lambda) | 18 = Ground terminal | 24 = Pre-supply pump |
| 6 = Air-flow sensor | 13 = Test pin, output stage (injection pulse t_i) | 19 = Pressure sensor (altitude sensor) | KL. = Term. |
| 7 = Overrun cutoff suppression relay | | | |

A9

Electrical connection diagram
Peugeot 505 Turbo



A10

Electrical connection diagram
Peugeot 505 Turbo



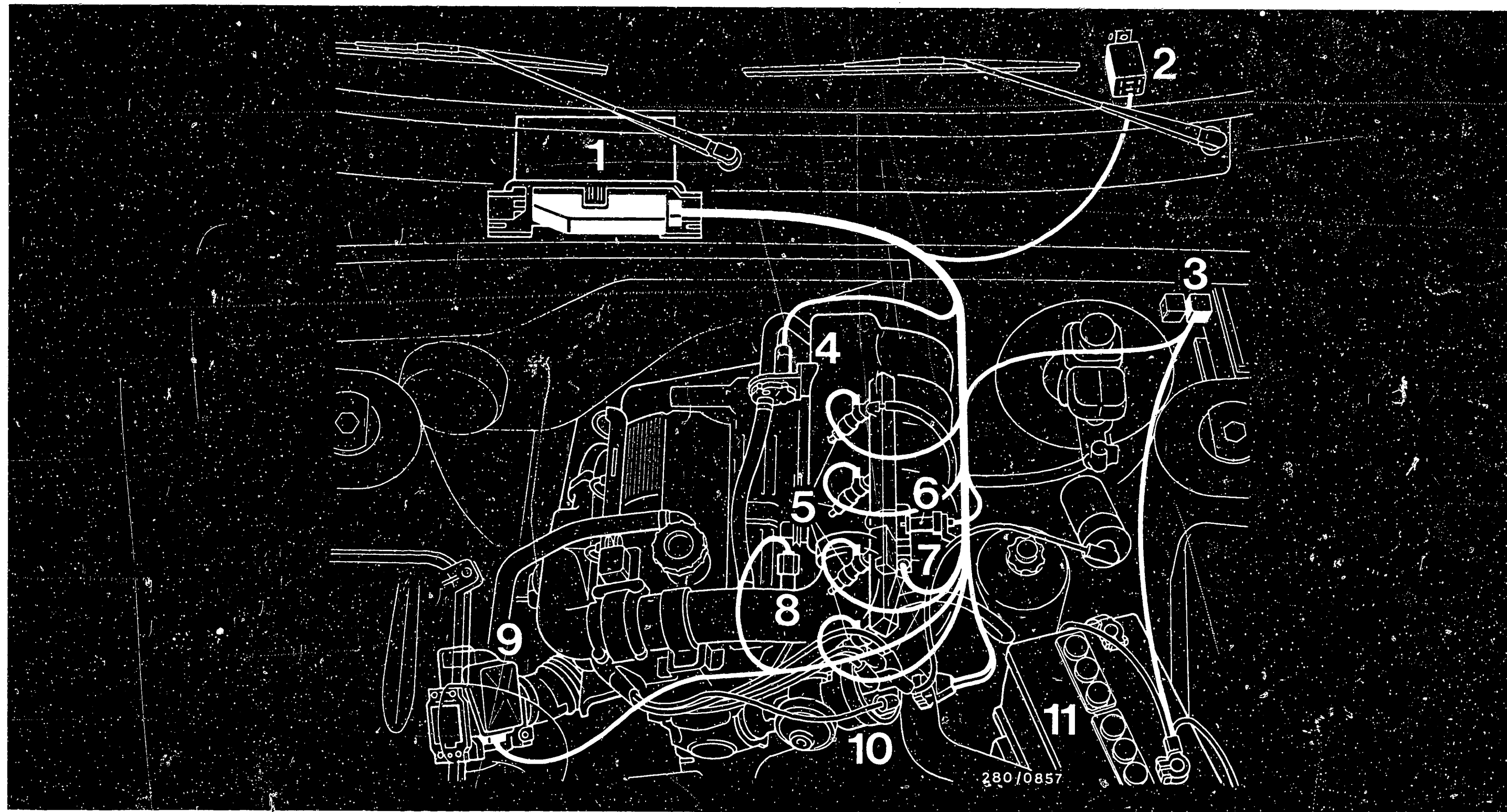


DIAGRAM OF ELECTRICAL LEADS AND ARRANGEMENT OF INDIVIDUAL COMPONENTS

1 = Control unit
2 = Control relay
3 = Auxiliary relay
4 = Auxiliary-air device

5 = Electric fuel-injection valves
6 = Electric starting valve
7 = Throttle valve switch
8 = Charge-air pressure switch

9 = Air-flow sensor
10 = Ignition distributor
11 = Battery

A11

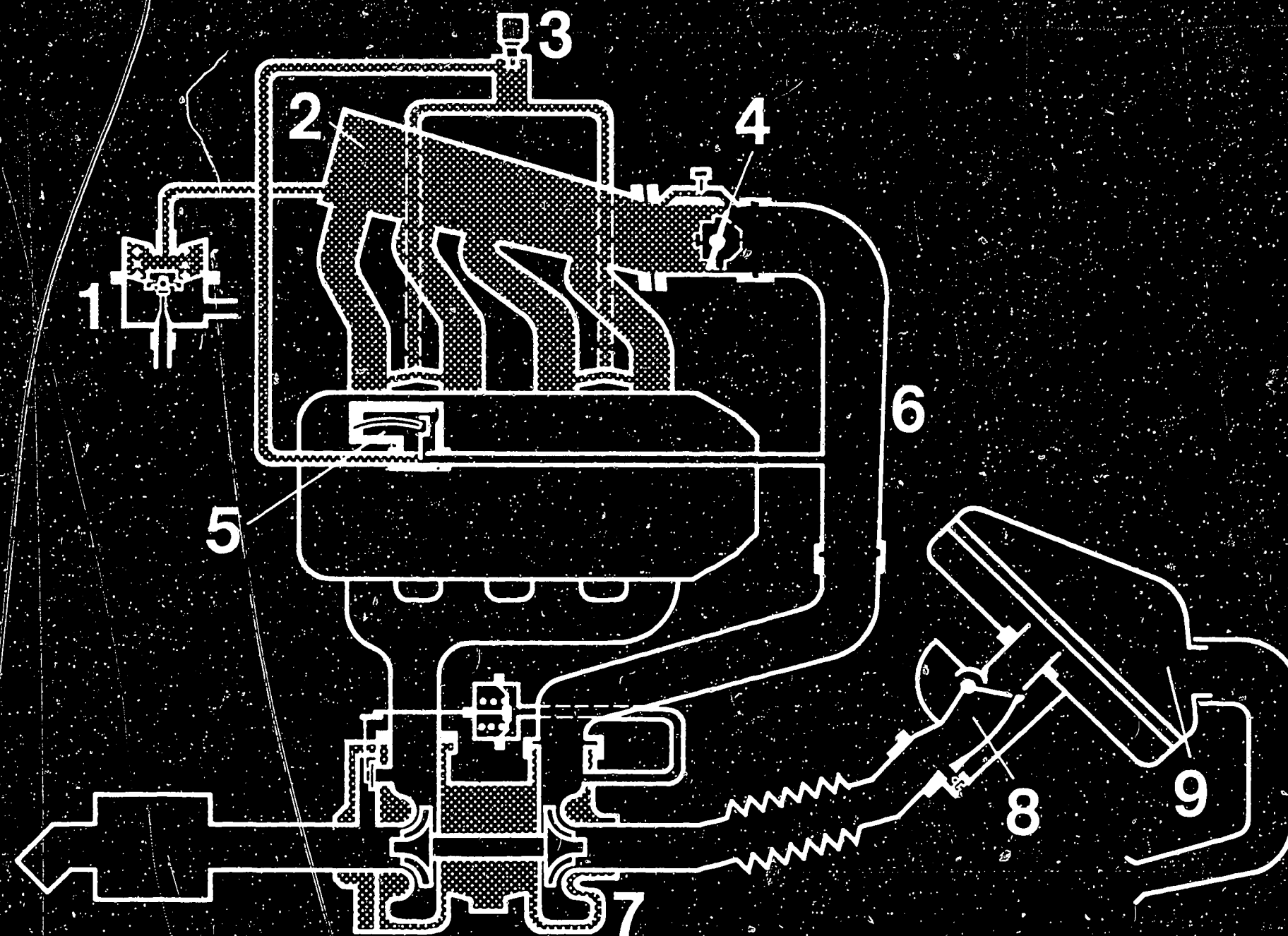
Electrical lead diagram
Peugeot 505 Turbo



A12

Electrical lead diagram
Peugeot 505 Turbo





280 / 0858

DIAGRAM OF AIR AND FUEL LINES

• Diagram of air lines

— Atmospheric pressure
 Intake manifold pressure

1 = Pressure regulator
 2 = Intake manifold
 3 = Starting valve

4 = Throttle valve
 5 = Auxiliary-air device
 6 = Air guide pipe

7 = Exhaust gas turbocharger
 8 = Air-flow sensor
 9 = Air filter

A13

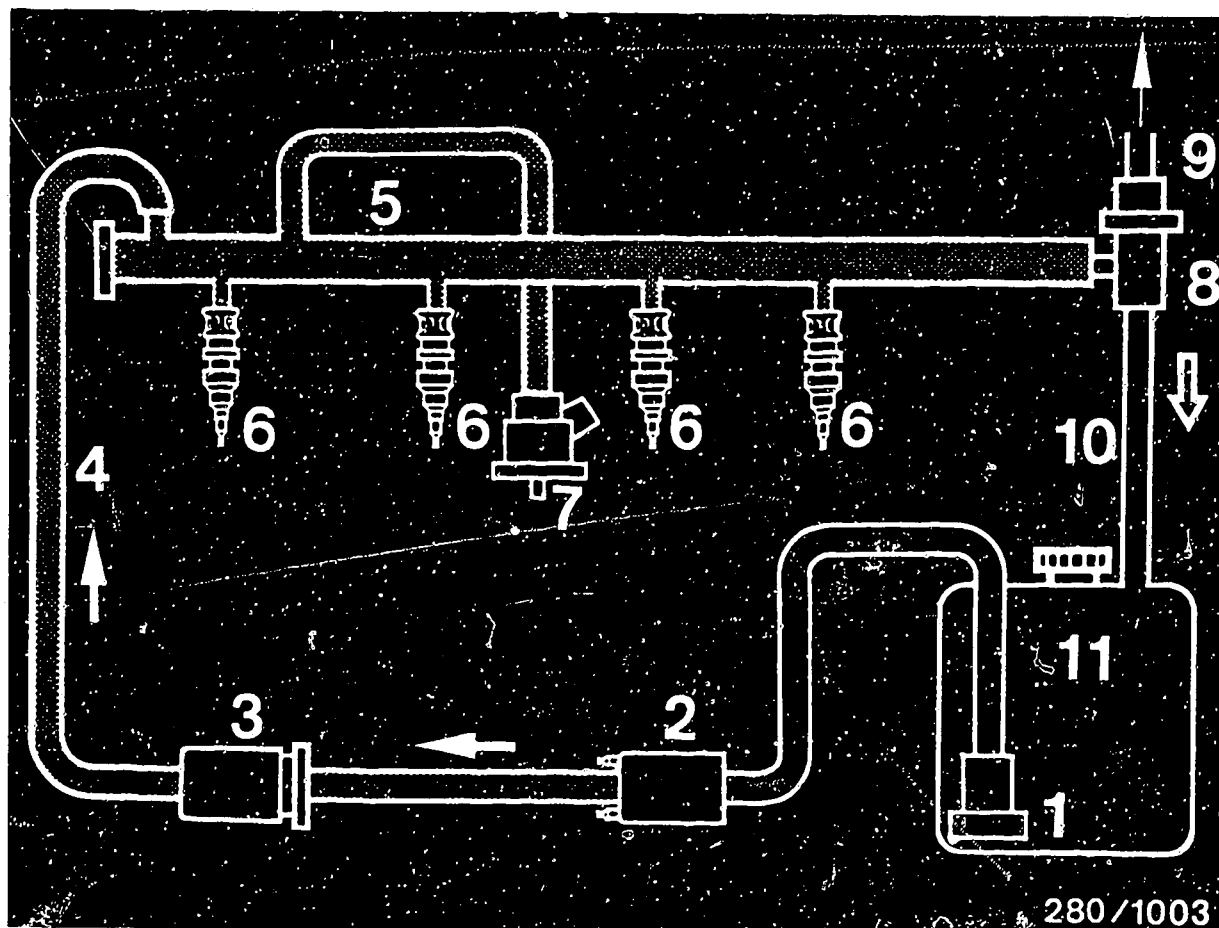
Diagram of air and fuel lines
 Peugeot 505 Turbo



A14

Diagram of air and fuel lines
 Peugeot 505 Turbo





● Diagram of fuel lines

————— No pressure
 - - - - - Fuel pressure

- 1 = In-tank pre-supply pump
- 2 = Electric fuel pump
- 3 = Fuel filter
- 4 = Delivery line
- 5 = Fuel distribution pipe
- 6 = Electric fuel-injection valves
- 7 = Electric starting valve
- 8 = Pressure regulator
- 9 = Intake manifold pressure connection
- 10 = Return line
- 11 = Fuel tank

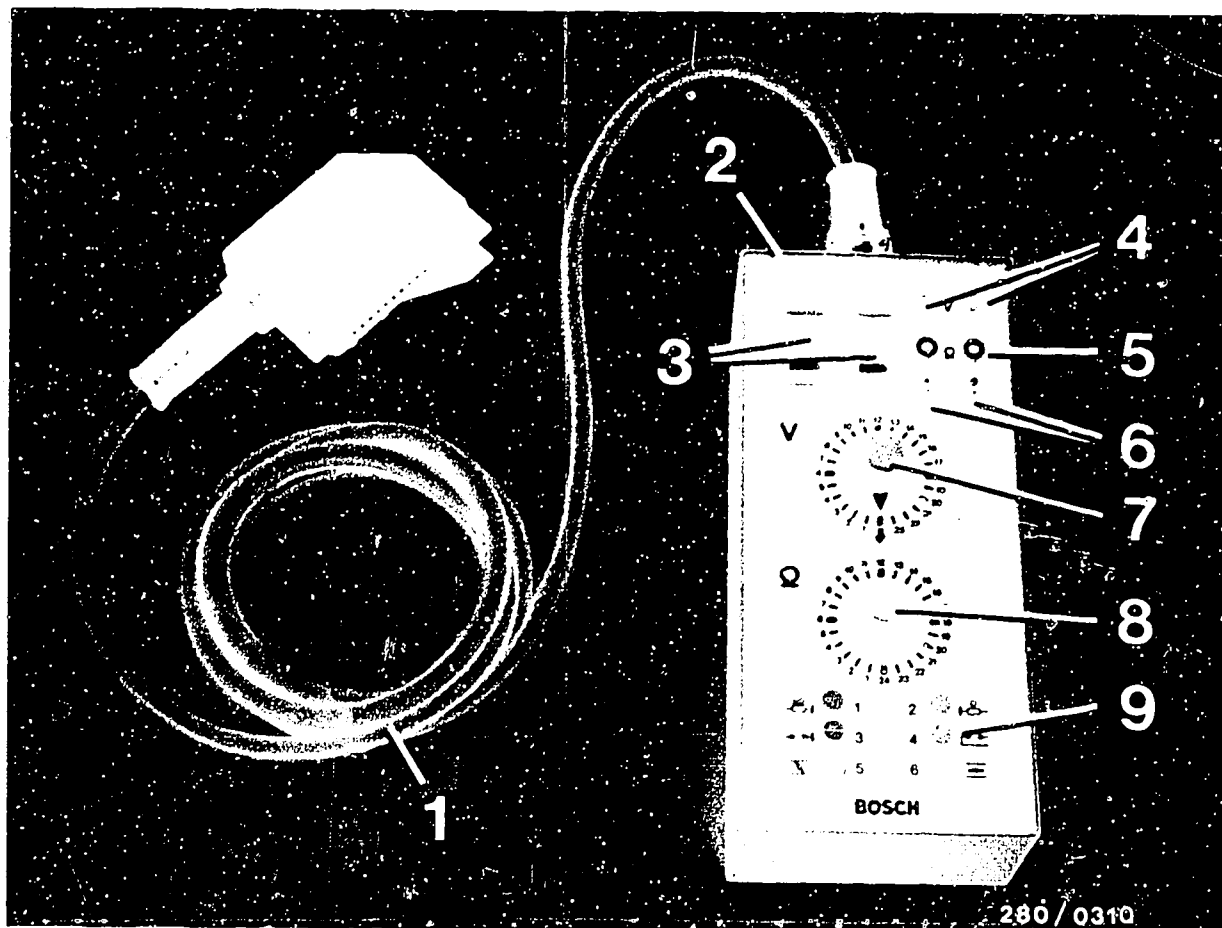


TEST EQUIPMENT AND TOOLS

<u>Name</u>	<u>Designation</u>	<u>Part No.</u>
Universal test adapter	ETT 018.01	0 684 101 801
Adapter lead		1 684 463 123
Motortester	e.g. MOT 002.00 MOT 300 MOT 400	0 684 000 200 0 684 000 300 0 684 000 400
Test lead		1 684 463 093
Exhaust gas analyzer	e.g. ETT 088.00 ETT 008.04	0 684 100 800 0 684 100 804
Calibrated exhaust gas analyzer	or ETT 008.05	0 684 100 805
Lambda closed-loop control tester	KDJE-P-600	
Lambda sensor assembly paste	VS 140 16 Ft	5 964 080 105
Pressure tester		KDJE-P 100
Pressure tester (no longer available)		KDEP 1034
Connector		KDJE-P 100/14
Electric tester or multimeter, e.g.:	ETE 014.00 Philips Miselco Chinaglia	0 684 101 400 PM 2517 X Master 50K Cortina
Hex screwdriver, AF 5	Commercially available	e.g. Hahn & Kolb No. 52138
Electric fuel-injection valve		0 280 150 255
Parts kit		1 287 010 704
Silicon grease	Ft 2 v 1	5 700 080 125

Use suitable commercially-available tools to remove and put on the idle CO anti-tamper device on the air-flow sensor.

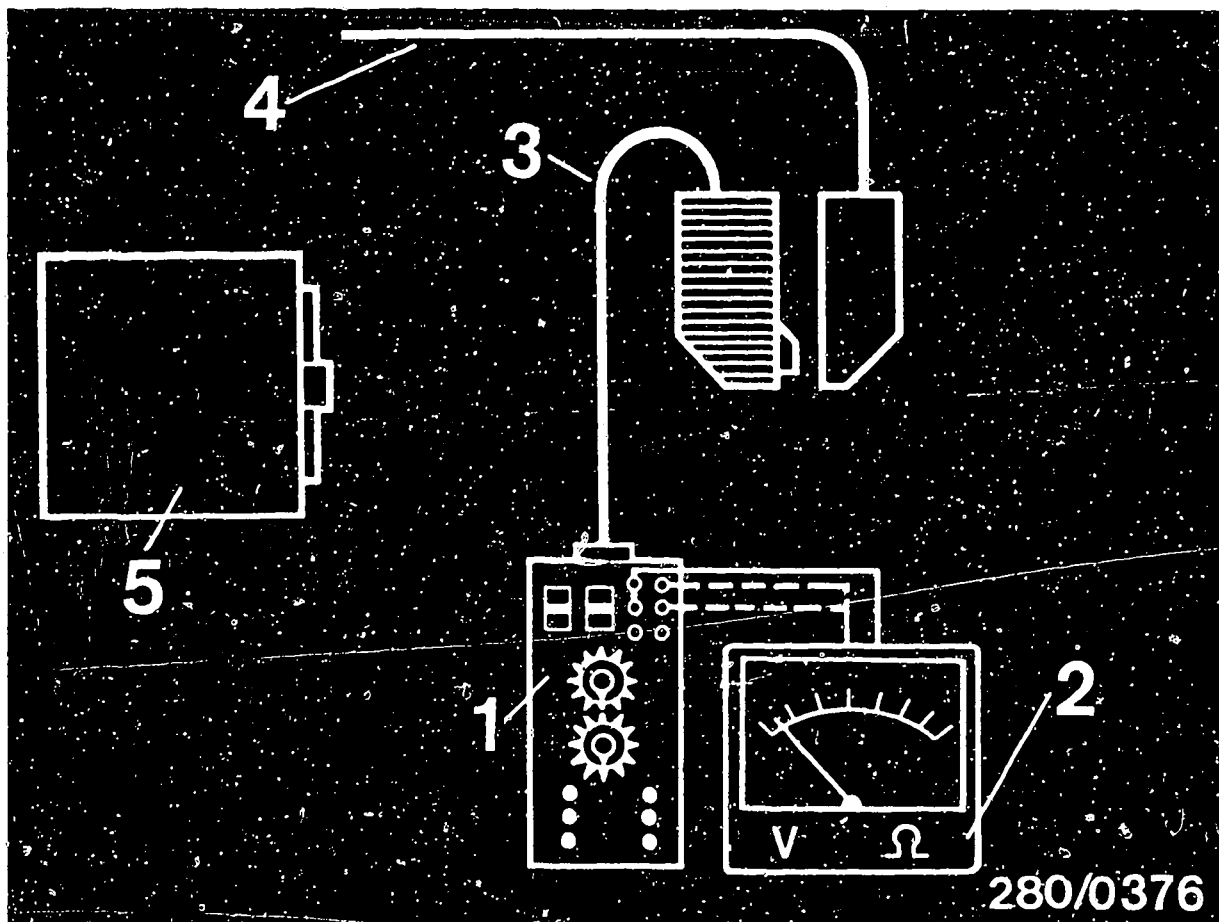




Universal test adapter with adapter lead for versions
LE/LU of the L-Jetronic

- 1 = Adapter lead (Part No. 1 684 463 123)
- 2 = Universal test adapter (Part No. 0 684 101 801)
- 3 = Test wells (for motortester)
- 4 = Test sockets (for measurement of voltage)
- 5 = Test sockets (for measurement of resistance)
- 6 = Test sockets (not yet assigned)
- 7 = Program switch "V"
- 8 = Program switch "Ω"
- 9 = Buttons (not assigned for LE/LU version)





- 1 = Universal test adapter 4 = Jetronic wiring harness
 2 = Multimeter 5 = LE/LU control unit
 3 = Adapter lead (LE/LU)

General information:

The universal test adapter is connected to the vehicle wiring harness using the adapter lead.

Caution:

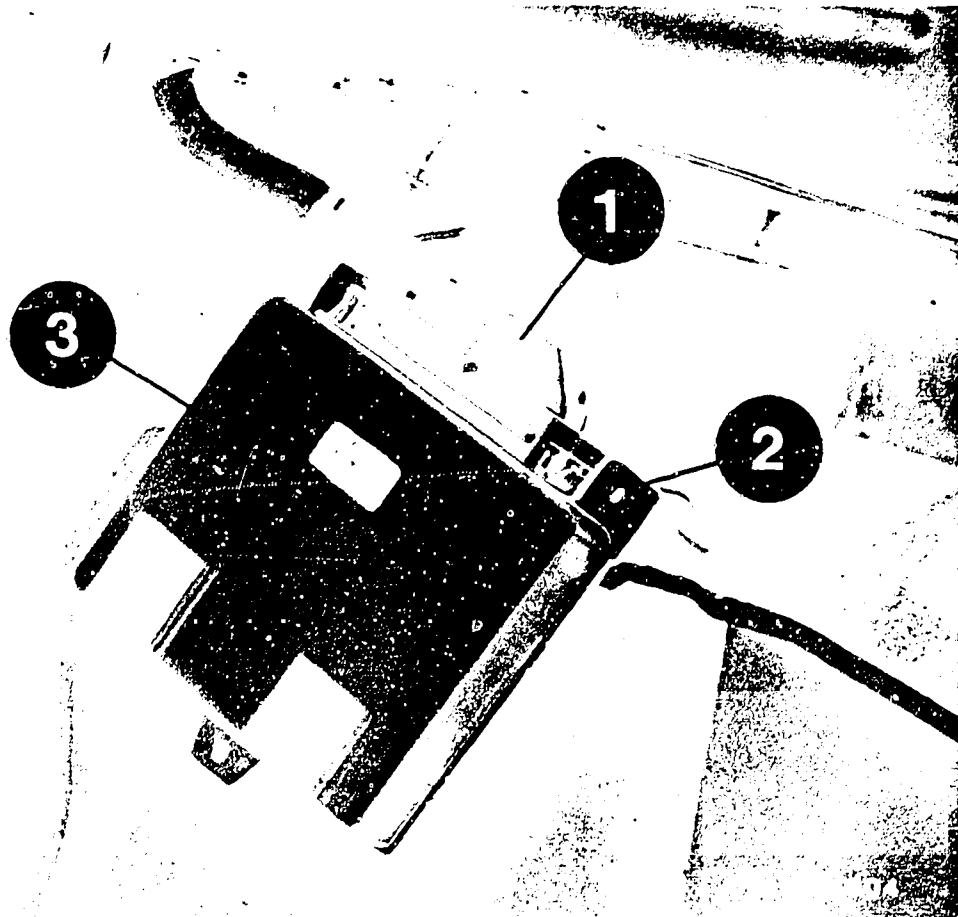
Plug in and unplug the universal test adapter only when the ignition is switched off.

Testing:

A multimeter with R_i min. $20 \text{ k}\Omega/\text{V}$ is connected to the test adapter for testing.

In addition, the signal from Term. 1 or Term. TD on the ignition coil can be measured with a motortester via the special input.





- 1 = 25-pole control unit plug
- 2 = Fastening tabs
- 3 = Control unit

INSTALLATION POSTION OF THE COMPONENTS

- Control unit, in the passenger compartment

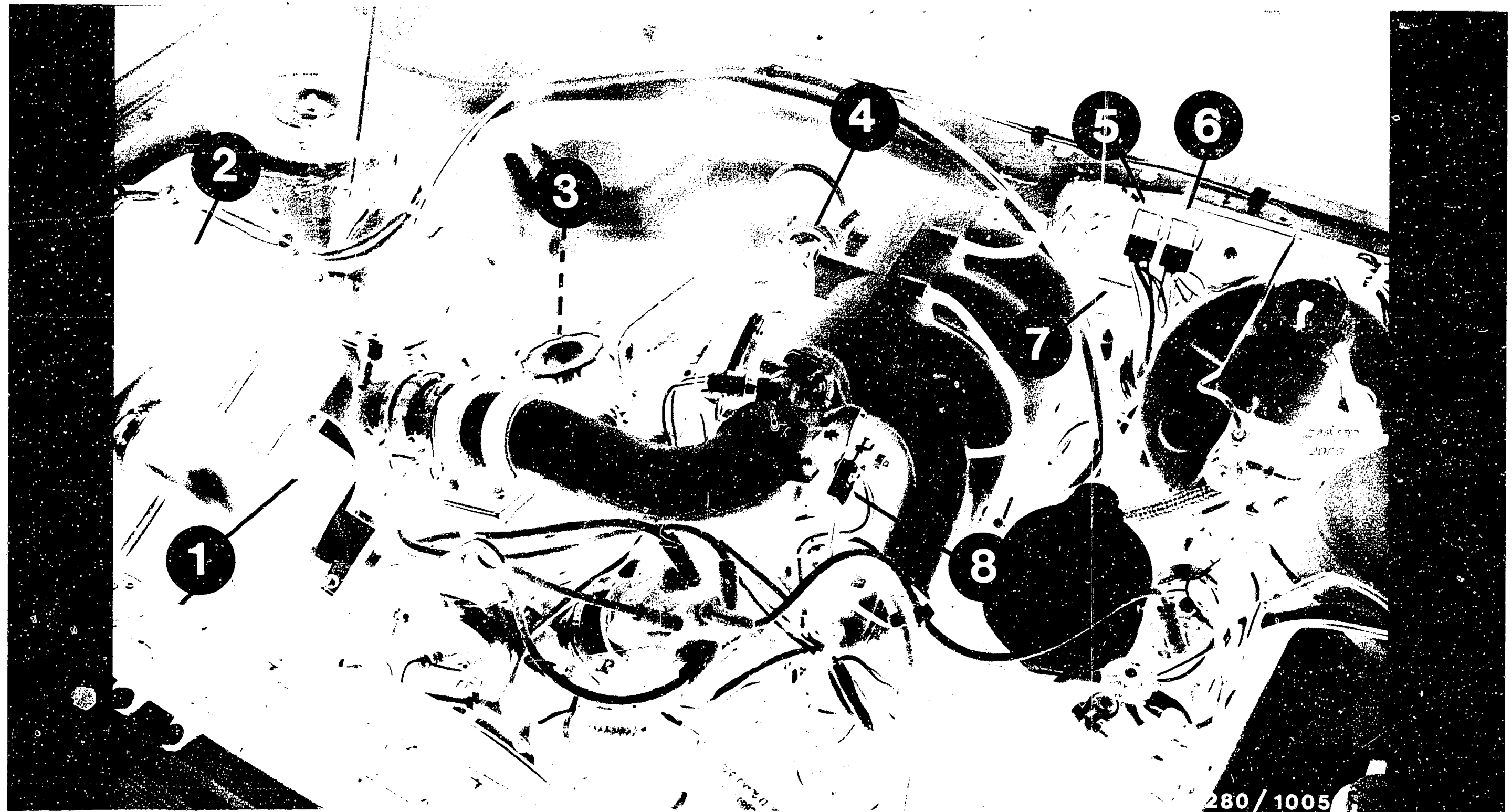
All indications for installation position are always given looking in the direction of forward vehicle travel.

The control unit is in the passenger compartment, on the front passenger's side, above the glove compartment.

Swing the glove compartment down, take out the light at the front, and swing it back.

To connect the universal test adapter, disconnect the control unit plug (25-pole). To do this, press the detent to the side.





Installation position of the components (continued)

1 = Air-flow sensor

2 = Air filter

3 = To the exhaust gas turbocharger

4 = Auxiliary-air device

5 = Auxiliary relay

6 = Relay for overrun cutoff suppression

7 = Pressure sensor (altitude sensor)

8 = Idle throttle valve

switch and potentiometer

A20

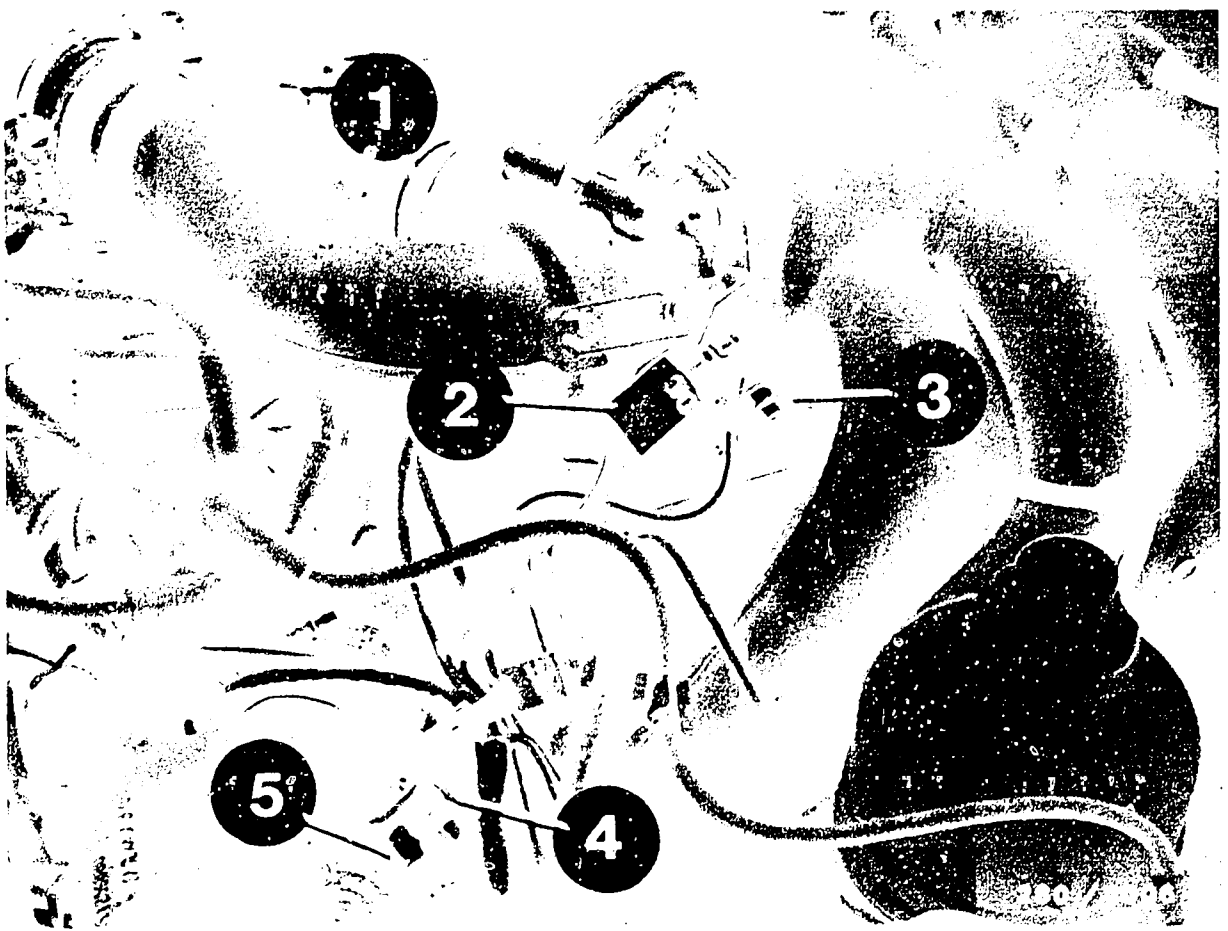
Installation position of the components
Peugeot 505 Turbo



A21

Installation position of the components
Peugeot 505 Turbo





- 1 = Charge-air pressure switch
- 2 = Idle throttle valve switch
- 3 = Potentiometer
- 4 = Temperature sensor II
- 5 = Thermotime switch

The +40°C temperature switch is located on the top on the coolant distributor pipe.

Installation position of the components (continued)





Arrow = Central ground, behind cover plate

Installation position of the components (continued)

- Control relay, located under the dashboard on the left.
- Control unit for the electronic ignition K-ignition is located in the carpet casing under the front passenger's seat.
- Starting valve, hangs below the intake manifold.
- Lambda sensor, is screwed into the exhaust pipe in front of the right bulkhead.
- Electric fuel pump and fuel filter are mounted in front of the rear axle on the left.
- In-tank pre-supply pump is accessible via a center closure in the trunk compartment.



IMPORTANT GENERAL INSTRUCTIONS

1. Never start the engine unless the battery is firmly connected.
2. Starting assist using more than 16 V or a quick-charger is not allowed!
3. Never disconnect the battery from the vehicle electrical system while the engine is running.
4. When quick-charging the battery, disconnect it from the vehicle electrical system.
5. Remove the control unit at temperatures higher than +80°C (paint-drying ovens).
6. Make certain all connecting plugs on the wiring harness are properly seated.
7. Never plug in or unplug the wiring harness plug for the control unit when the ignition is switched on.
8. For a test of compression pressure, interrupt the red power supply line between the battery and the control relay and the auxiliary relay by taking the plug connection apart. This also interrupts the power supply for the LE/LU version and therefore for the electric fuel-injection valves as well. This prevents undesired fuel injection.
9. The LE/LU version control unit must be taken out during electrical welding (e.g., spot welding).
10. Prerequisites for the use of the trouble-shooting below are that the engine is O.K. and that the ignition has been correctly set. The electrical system must be rechecked and if need be repaired.
11. When putting in an alarm system, proceed according to microfiche card ALL-500.

In order to be able to do the testing described in these instructions and to evaluate the components, you should know the L-Jetronic and the way it operates. The significant points about this operation and the structure of the L-Jetronic have been described in Technical Instruction VDT-U 3/3.



TROUBLE-SHOOTING CHARTS

The purpose of the trouble-shooting charts that follow, used in conjunction with the universal test adapter and adapter lead (1 684 463 123) and other suitable testers, is to make it possible for the workshop employees to identify the causes of defects on the LE/LU version quickly. A choice can be made between the following procedures, depending upon the training and experience of the mechanic:

- Detailed, step-by-step trouble-shooting chart for employees with little experience and practice on vehicles with the LE/LU version. Entry in accordance with customer complaint always brings you into a complete trouble-shooting program.
- Targeted trouble-shooting chart leading directly to the cause of the defect, for trained and experienced employees with greater practice on vehicles with the LE version. Entry according to the customer complaint is made at a given component of one's choice within the trouble-shooting program.

B3**B4**

Both trouble-shooting charts start with checking the electrical/electronic portion of the LE/LU version using the universal test adapter and the adapter lead. With this, the electrical operation of the wiring harness and the components connected to it are checked in a brief time and defects are identified.

If no defect is found using the universal test adapter, it is necessary to run the fuel pressure test.

If no defect is found here, either, it is necessary to continue using the detailed or the targeted trouble-shooting chart.

B1

Trouble-shooting charts
Peugeot 505 Turbo

**B2**

Trouble-shooting charts
Peugeot 505 Turbo



Detailed, step-by-step trouble-shooting chart for the complete trouble-shooting program

- Electrical testing with universal test adapter, adapter lead 1 684 463 123, and a motortester or multimeter

Be absolutely certain to start the testing program with this test and to run this test from start to finish (Coordinates B9...C11).

- Fuel pressure test with pressure gauge

Be absolutely certain to run this test following the testing with the universal test adapter and to run it from start to finish (Coordinates C12...C23).

- Trouble-shooting according to customer complaints (defect symptoms)

The table below contains possible defect symptoms and, next to them in the column at the right, the initial coordinates for the pertinent detailed trouble-shooting program. This consists of test steps in a proper sequence for all individual components of the LE/LU version. If the defect has not been identified and corrected after conclusion of a trouble-shooting program for a given assumed symptom, a new program must be determined based on a new defect symptom, and worked through.

<u>Customer complaints (defect symptoms)</u>	<u>Electrical test with universal test adapter</u>	<u>Fuel pressure test with pressure gauge</u>	<u>Coordinates</u>
1. Starting motor turns, engine does not start, or starts only with difficulty	B 9	C 12	D 1
2. Engine starts and then dies	B 9	C 12	D 17
3. Rough idle or incorrect idle speed	B 9	C 12	E 3
4. Poor throttle take-up	B 9	C 12	F 11
5. Engine missing in all driving conditions	B 9	C 12	G 3
6. Poor mileage	B 9	C 12	H 1
7. Insufficient max. power or max. velocity	B 9	C 12	H 13
8. Idle speed and CO-level too low or too high; lambda closed-loop control not O.K.	B 9	C 12	J 3

B3

Trouble-shooting
Peugeot 505 Turbo



B4

Trouble-shooting
Peugeot 505 Turbo



Targeted trouble-shooting chart leading directly to the cause of the defect, for components within the trouble-shooting programs.

- Electrical test with the universal test adapter, adapter lead 1 684 463 123, and a motortester or multimeter
Be absolutely certain to start the testing program with the testing with the universal test adapter, and to run that test from start to finish (Coordinates B 9...C 11).
- Fuel pressure test with pressure gauge
Be absolutely certain to run the fuel pressure test after the test with the universal test adapter and to run that test from start to finish (Coordinates C 12...C 23).
- Trouble-shooting according to customer complaint
The table below contains various defect symptoms with several possible causes of defects in each instance. The cross-reference field indicates the initial coordinates for the test step on the pertinent individual components of the LE/LU version. If the defect has not been identified or corrected after conclusion of the testing on individual components, a new defect symptom must be determined.

Customer complaints (defect symptoms)

1. Starting motor turns, engine does not start or starts only with difficulty
2. Engine starts and then dies
3. Rough idle or incorrect idle speed
4. Poor throttle take-up
5. Engine missing in all driving conditions
6. Poor mileage
7. Insufficient max. power or max. velocity
8. Idle speed and CO-level too low or too high
- Cause (Component defect)

B9	B9	B9	B9	B9	B9	B9	B9	Defects in the electrical system. Testing with universal test adapter
C12	C12	C12	C12	C12	C12	C12	C12	Defects in the fuel supply system. (Check control relay, pump fuse, electric fuel pump, fuel pressure, and pressure regulator. Fuel pressure remains constant. Test for leaks).
D9	D21		F15					Auxiliary-air device is not opening
		E11					J7	Auxiliary-air device is not closing
D11		E19	F17	G5	H9	H21	J9	Air-flow sensor defective, potentiometer test (noise test)

Customer complaints (defect symptoms)

1. Starting motors turns, engine does not start or starts only with difficulty
2. Engine starts and then dies
3. Rough idle or incorrect idle speed
4. Poor throttle take-up
5. Engine missing in all driving conditions
6. Poor mileage
7. Insufficient max. power or max. velocity
8. Idle speed and CO-level too low or too high

Cause (Component defect)

D7		E7						Thermotime switch defective
D13	D23	E21	F23			H	J13	Air intake system leaking
		E13		G17	H5			Electric fuel-injection valves defective. Connect test lead, repair
D3								Electric starting valve is not opening
D5	D19	E9			H3		J11	Electric starting valve is leaking
				G11		H19		Fuel delivery from electric fuel pump too low (in-tank pre-supply pump defective)
						H15		Time interval for replacement of exhaust catalytic converter, lambda sensor
		E5	F13	G13				Throttle valve is not closing. (Check overrun cutoff). Setting of throttle valve switch
						H15		Throttle valve is not opening completely
				G15				Overrun cutoff
				G13				Break in the wiring harness and plug connections. Interference. Missing. Ground contact
		E23	G1		H11		J5	CO exhaust setting too rich, idle adjustment
		E23	G1	G13			J5	CO exhaust setting too lean, idle adjustment. Engine coughing
				G15				Control unit defective
		F1	F1	F1	F1		F1	Lambda closed-loop control defective

B7

Trouble-shooting
Peugeot 505 Turbo



B8

Trouble-shooting
Peugeot 505 Turbo



TEST CHART FOR THE UNIVERSAL TEST ADAPTER
with adapter lead 1 684 463 123 for the LU version connected

- Before testing with the universal test adapter, check all multiple plug connections for loose contacts. Clean dirty or corroded plug contacts.
- Watch for receptacles that have been pushed back. If necessary, rebend the latching blade and press the receptacle into the plug housing as far as the stop. The latching blade catches.
- Suspect breaks in leads where they are pinched or bent.

Installation position of the control unit: Above the glove compartment on the front passenger's side.

Only the periphery of the electrical system (not including the control unit) is tested using the universal test adapter.

Disconnect the control unit plug of the Jetronic wiring harness from the control unit and connect it to the plug of the adapter lead. (The ignition must be switched off.)

A multimeter for measurements of voltage and resistance and a motor-tester are to be connected to the universal test adapter for taking measurements.

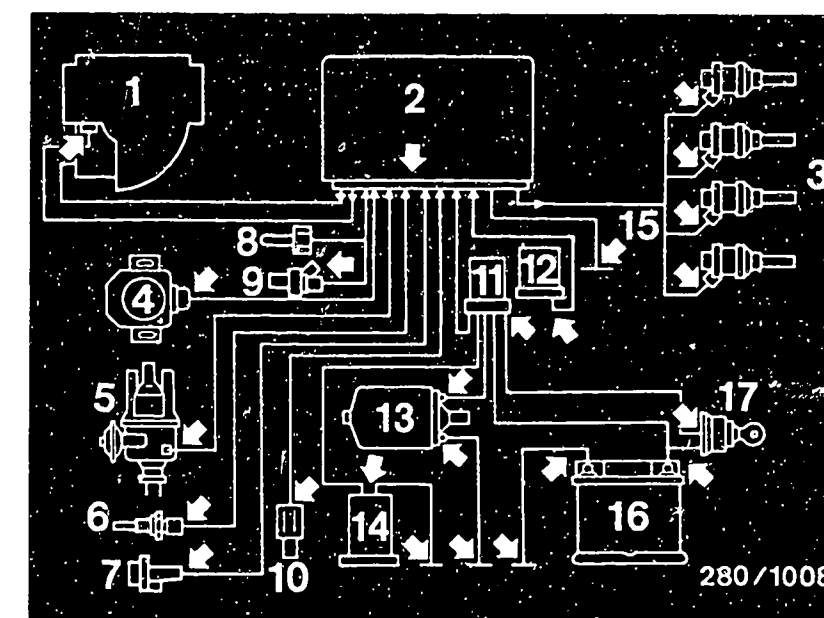
The individual test steps are selected using two program switches (one for measurements of voltage, and the other for measurements of resistance). Each program switch has 24 test settings, but only some of them are assigned in the case of the LE/LU version.

If a defect is found in one of the tests, that test must be repeated after the defect is corrected.

The testing with the universal test adapter must always be carried through completely.

Be absolutely certain to follow the instructions in the test chart!

- In test steps 1...4, measurements are taken of voltages during start or with ignition "ON". Set the multimeter to the "Voltage scale".
- In test steps 5...12, measurements are taken of the resistance. Set the multimeter to "Resistance scale". The test specifications and instructions for operation of the universal test adapter are indicated in the test chart that follows.



Electrical plug connections (arrows)

- 1 = Air-flow sensor
- 2 = Control unit
- 3 = Electric fuel-injection valves
- 4 = Throttle valve switch
- 5 = Ignition distributor
- 6 = Temperature sensor (engine)
- 7 = Auxiliary-air device
- 8 = Thermotime switch
- 9 = Electric starting valve
- 10 = Charge-air pressure switch
- 11 = Control relay
- 12 = Auxiliary relay
- 13 = Electric fuel pump
- 14 = In-tank pre-supply pump
- 15 = Ground terminals
- 16 = Battery
- 17 = Ignition lock



Instructions:

In the test steps that follow, a white border in the column "Operation" indicates what operation has been changed in comparison to the preceding test step.

TEST STEP 1

Operation		Reading	Testing
<u>Program switch "V"</u> in setting:	5	t_n signal present (See Figure at lower right)	<u>Component:</u> Ignition system Signal from Term. 17 of the electronic ignition K-control unit.
<u>Program switch "Ω"</u> in setting:	1)		
<u>Test equipment:</u> Ignition oscilloscope		<div><div>yes</div><div>↓</div><div>Continue testing with next test step.</div></div> <div><div>no</div><div>↓</div></div>	<u>Operation:</u> Voltage pulses Triggering of the control unit by the electronic igni- tion K-control unit.
<u>Scale:</u> Special input Control lever at stop at left and scale 20 V			
<u>Connection:</u> Test wells			<u>Malfunction:</u> No reading
<u>Operation in vehicle:</u> Ignition "ON" and start engine			

Trouble-shooting:

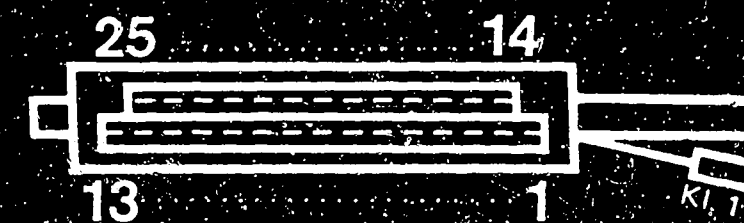
For testing, disconnect control unit plug from the test adapter.
If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity (specified value 0 Ω):

- From control unit plug Term. 1 to the electronic ignition K-control unit Term. 17.
- From the control unit plug Term. 5 to the central ground.
- Eliminate contact resistances in the plug connections.

If the TN signal is still not there, check the ignition system.

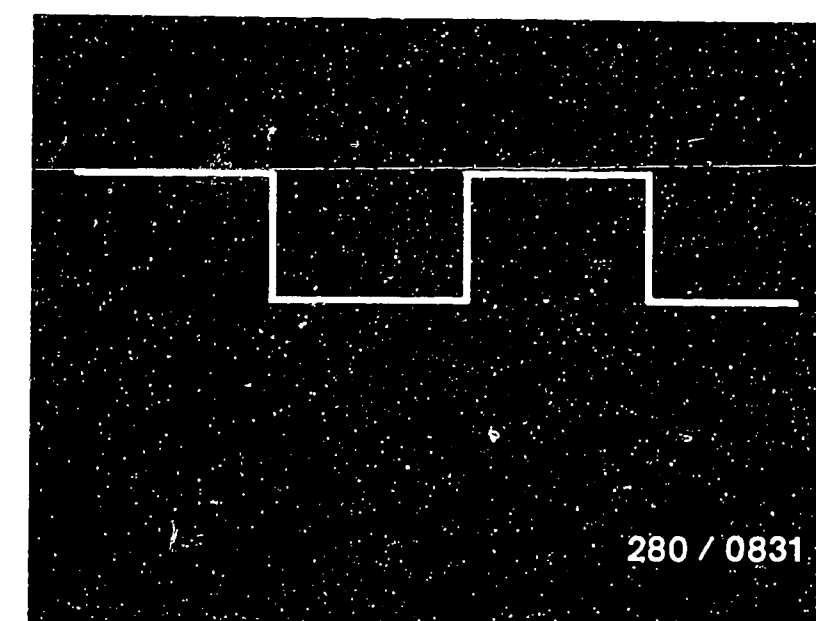
1) Switch setting not established.



280/0314

Top view of control unit plug

t_n signal



280 / 0831

B 11

Trouble-shooting

Peugeot 505 Turbo



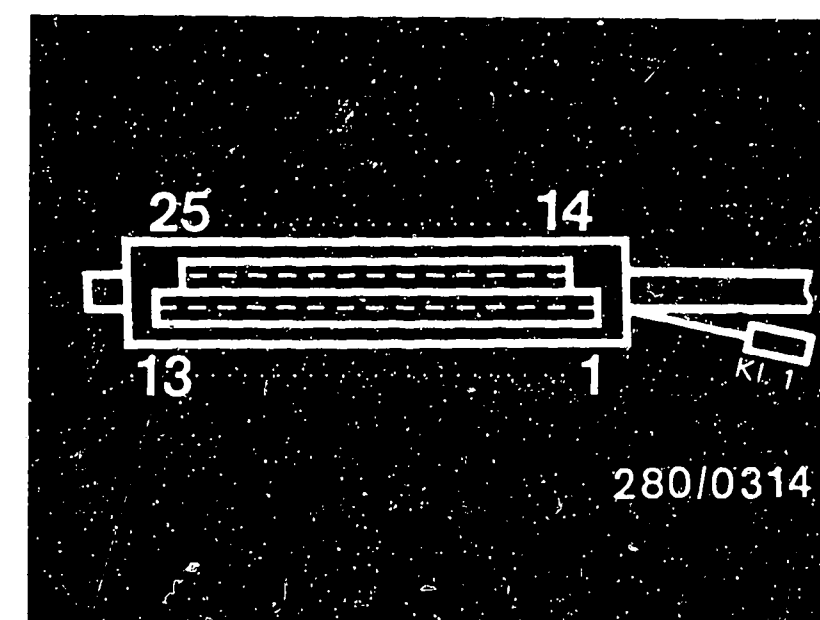
B 12

Trouble-shooting

Peugeot 505 Turbo

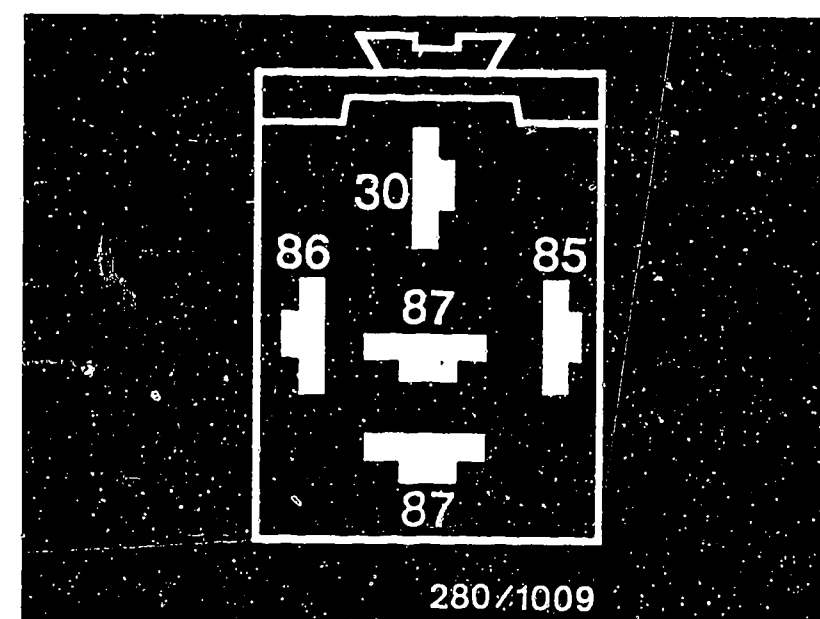


TEST STEP 2			
Operation		Reading	Testing
Program switch "V" in setting:	6	Tester must read 8 ... 15 V	Component: Auxiliary relay Power supply
Program switch "Ω" in setting	-		
Test equipment: Motortester or multimeter (V-range)			
Scale: 0...15 V		yes ↓	Operation: Power supply from Term. 87 of the auxiliary relay
Connections: Red test socket (+) Black test socket (-)		no ↓	Malfunction: No reading for voltage
Operation in vehicle: Ignition "ON"			



Top view of control unit plug

Auxiliary relay disconnected.
Top view of plug



Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.

If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity (specified value approx. 0 Ω):

- From control unit plug Term. 9 to the auxiliary relay Term. 87.

For further testing, disconnect the battery!

- From the auxiliary relay Term. 30 to the battery (positive connection).
- From the auxiliary relay Term. 86 to the ignition Term. 15.
- From the auxiliary relay Term. 85 to the central ground.
- Eliminate contact resistances in the plug connections.

If the reading for voltage is still missing, take out and replace the auxiliary relay.

Installation position of the components:

- Control unit: In the passenger compartment, on the front passenger's side, above the glove compartment.
- Auxiliary relay: In the engine compartment, on the retaining plate to the left of the bulkhead.

B 13

Trouble-shooting
Peugeot 505 Turbo

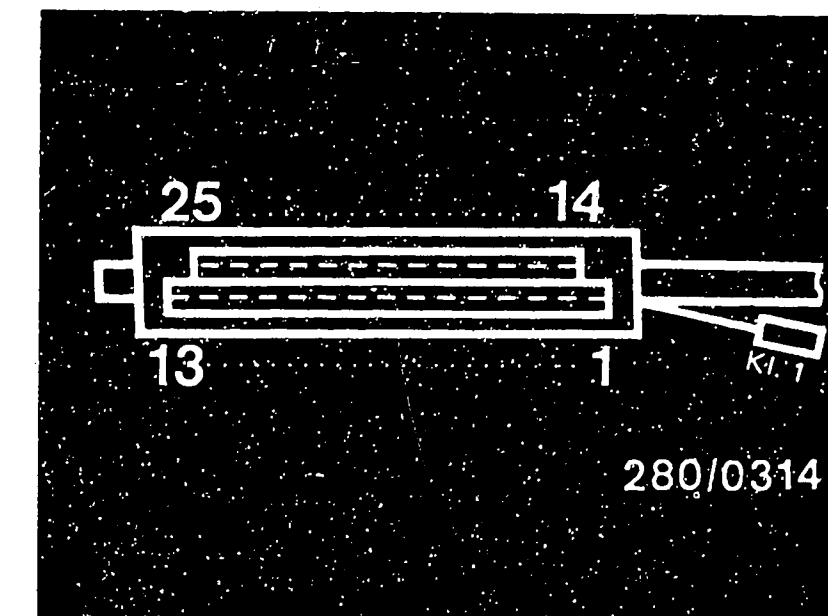


B 14

Trouble-shooting
Peugeot 505 Turbo



TEST STEP 3			
Operation		Reading	Testing
<u>Program switch "V"</u> <u>in setting:</u>	7	Tester must read <u>8 ... 15 V</u>	<u>Component:</u> Ignition-and-starting switch
<u>Program switch "Ω"</u> <u>in setting:</u>	-		
Test equipment: Motortester or multimeter (V-range)		<div><div>yes</div><div>no</div></div> <div><div>Continue testing with next test step.</div><div></div></div>	<u>Operation:</u> Starting signal from Term. 50
<u>Scale:</u> 0...15 V			
<u>Connections</u> Red test socket (+) Black test socket (-)			
<u>Operation in vehicle:</u> Ignition "ON" and start the engine			<u>Malfunction:</u> No reading for voltage



Top view of control unit plug

Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.
If necessary, use wiring diagram.

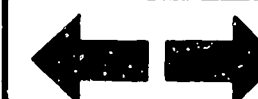
Check the following leads with an ohmmeter for continuity
(specified value approx. 0 Ω):

- From control unit plug Term. 4 to the ignition-and-starting switch Term. 50
- Eliminate contact resistances at the plug connections.

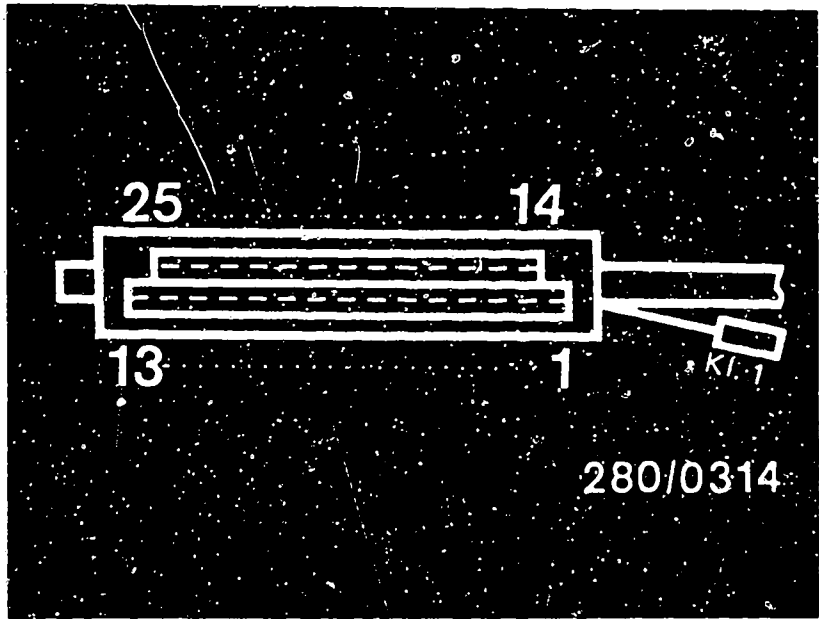
If the reading for voltage is still missing, check the starting equipment.

Installation position of the components:

- Control unit:
In the passenger compartment, on the front passenger's side, above the glove compartment.

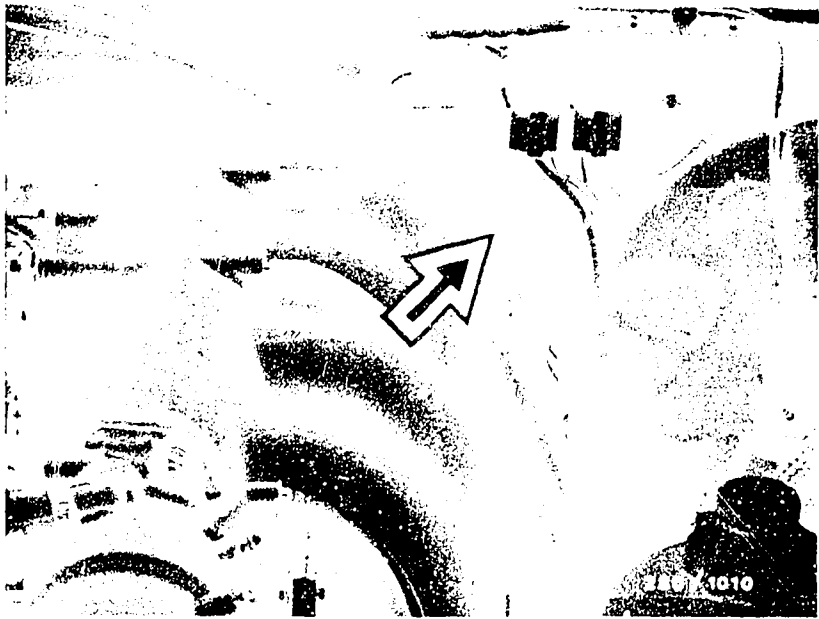


TEST STEP 4		N.B.! For US models only	
Operation		Reading	Testing
<u>Program switch "V"</u> in setting:	8	Tester must read 2.0 ... 4.0 V at approx. 300 m elevation, 8.0 ... 12.0 V at approx. 4000 m elevation.	<u>Component:</u> Pressure sensor (altitude sensor) Term. 11
<u>Program switch "Ω"</u> in setting:	-		
<u>Test equipment:</u> Motortester or multimeter (V-range)			
<u>Scale:</u> 0 ... 15 V		<div><div>yes</div><div>no</div></div>	<u>Operation:</u> Voltage signal depends on elevation above sea level. Leaning of the mixture as elevation increases.
<u>Connections</u> Red test sockets(+) Black test sockets (-)			
<u>Operation in vehicle:</u> Ignition "ON"			<u>Malfunction:</u> Value for voltage not within tolerance.
		Continue testing with next test step.	



Top view of control unit plug

Arrow = Pressure sensor



Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.

If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity

(specified value approx. 0 Ω):

- From control unit plug Term. 11 to the pressure sensor Term. 1
- From the pressure sensor Term. 2 to the central ground.
- From the pressure sensor Term. 3 to the control unit plug Term. 9
- Eliminate contact resistances at the plug connections.

If the reading for voltage is still missing, take out and replace the pressure sensor.

Installation position of the components:

- Central ground: Behind a cover plate in front of the left bulkhead
- Control unit: In the passenger compartment, on the front passenger's side, above the glove compartment.

B17


Test chart for universal test adapter
Peugeot 505 Turbo



B18

Test chart for universal test adapter
Peugeot 505 Turbo



TEST STEP 5		
Operation	Reading	Testing
Program switch "V" in setting: 	Tester must read <u>150 ... 400 Ω</u>	<u>Component:</u> Air-flow sensor (temperature sensor I)
Program switch " Ω " in setting: 11		
Test equipment: Motortester or multimeter (Ω -range)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> yes ↓ Continue testing with next test step. </div> <div style="text-align: center;"> no ↓ </div> </div>	<u>Operation:</u> Resistance of air-flow sensor Term. 8 to the central ground
Scale: x 10 Ω		<u>Malfunction:</u> Resistance not within tolerance
Connections: Blue test sockets		
Operation in vehicle: -----		

Trouble-shooting:

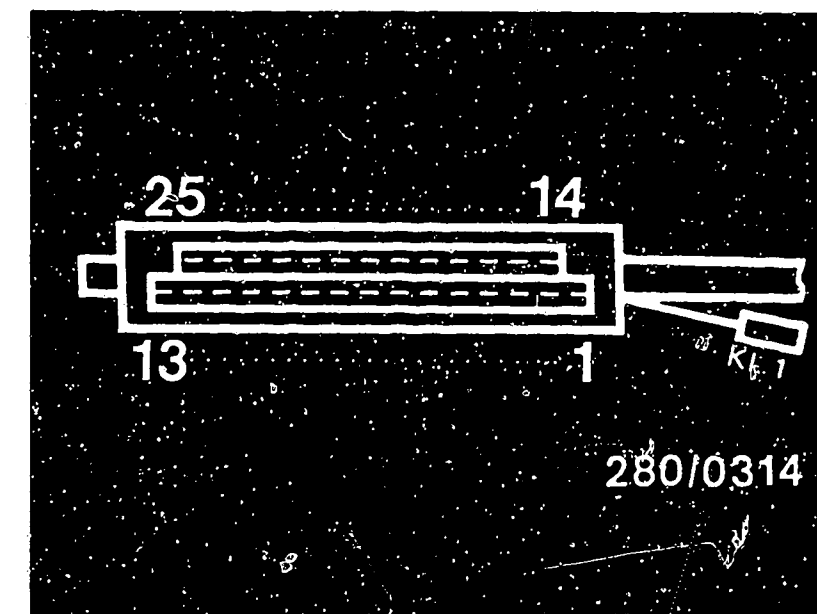
For testing, disconnect control unit plug from the test adapter.
If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity
(specified value approx. 0 Ω):

Air-flow sensor

- From the control unit plug Term. 8 to the air-flow sensor Term. 8.
- From the air-flow sensor Term. 5 to the central ground.
- From the air-flow sensor Term. 9 to the control unit plug Term. 9.
- Eliminate contact resistances in the plug connections.

If the reading for resistance is still not within tolerance, take out and replace the air-flow sensor.



Top view of control unit plug

Installation position of the components:

- Control unit:
In the passenger compartment, on the front passenger's side, above the glove compartment.
- Air-flow sensor:
Front right in the engine compartment.
- Central ground:
Behind a cover plate in front of the left bulkhead.

B 19

Test chart for universal test adapter
Peugeot 505 Turbo



B 20

Test chart for universal test adapter
Peugeot 505 Turbo



TEST STEP 6		Reading	Testing
Operation			
Program switch "V" in setting:	↓	Tester must read 60 ... 1000 Ω	Component: Air-flow sensor (potentiometer)
Program switch " Ω " in setting:	12		
Test equipment: Motortester or multimeter (Ω -range)		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> yes ↓ Continue test- ing with next test step. </div> <div style="text-align: center;"> no ↓ </div> </div>	Operation: Resistance of air-flow sensor Term. 7 to the central ground
Scale: x 10 Ω			Malfunction: Resistance not within tolerance
Connections: Blue test socket			
Operation in vehicle: Deflect air-flow sensor flap all the way.			

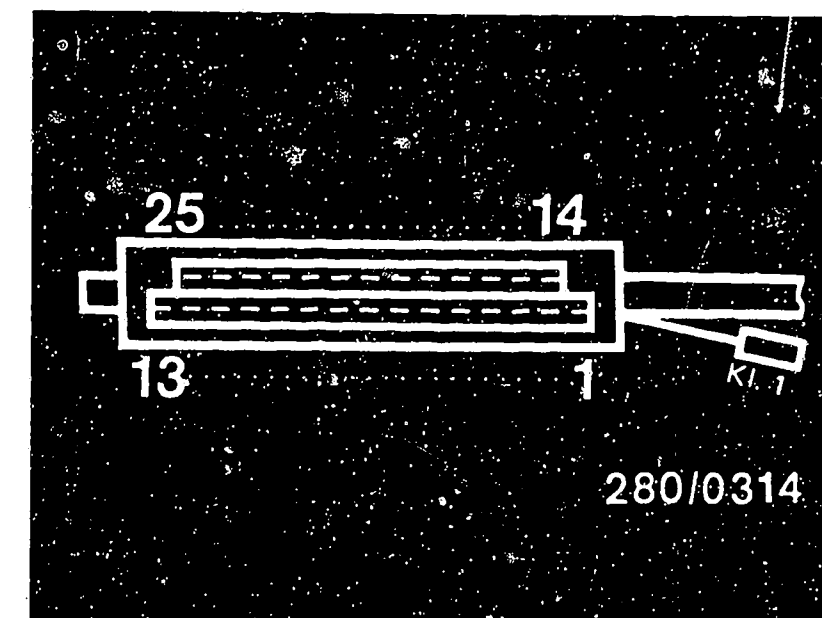
Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.
If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity (specified value approx. 0 Ω):

- From the control unit plug Term. 7 to the air-flow sensor Term. 7
- Eliminate contact resistances in the plug connections.

If the reading for resistance is still not within tolerance, take out and replace the air-flow sensor.



Top view of control unit plug

Installation position of the components:

- Control unit:
In the passenger compartment, on the front passenger's side, above the glove compartment.
- Air-flow sensor:
Front right in the engine compartment.



TEST STEP 7			
Operation		Reading	Testing
Program switch "V" in setting:	↓	The tester must read 1.45 ... 3.3 k Ω at ambient temperature (+15°...+30°C), and 280...360 Ω with engine at normal operating temperature (approx. +80°C).	<u>Component:</u> Temperature sensor II (engine)
Program switch " Ω " in setting:	13		
Test equipment: Motortester or multimeter (Ω -range)			<u>Operation:</u> Resistance from control unit Term. 10 to the central ground.
Scale: x 10 Ω or x 100 Ω			
Connection: Blue test sockets		yes ↓ Continue testing with next test step.	<u>Malfunction:</u> Resistance not within tolerance
Operation in vehicle: -----			
		no ↓	

Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.

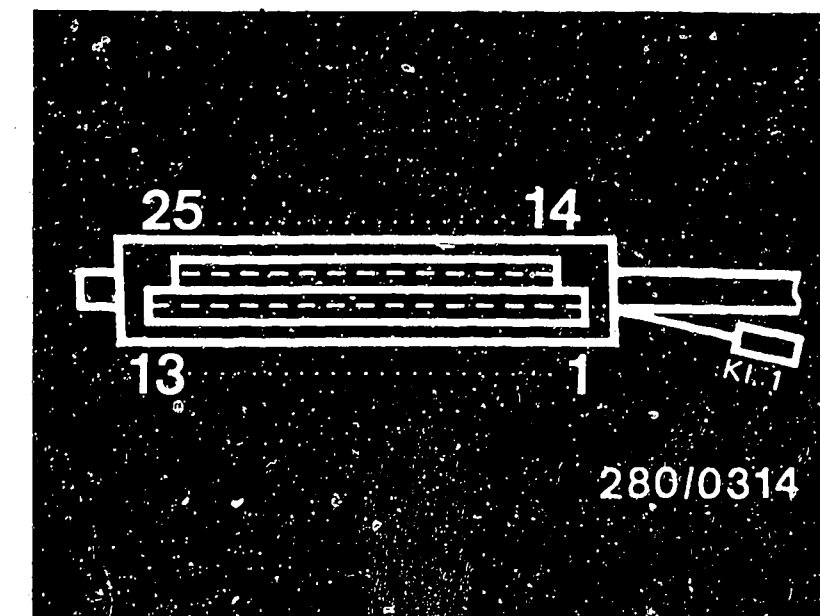
If necessary, use wiring diagram.

Measure the resistance directly on the temperature sensor II, engine (blue plug).

If the resistance measured is not within tolerance, take out and replace the temperature sensor.

Check the following leads with an ohmmeter for continuity (specified value approx. 0 Ω):

- From the control unit plug Term. 10 to the temperature sensor II (engine) Term. 10.
- Term. 38, temperature sensor II to the central ground.
- Eliminate contact resistances in the plug connections.



Top view of control unit plug

Installation position of the components:

- Temperature sensor II (engine):
On the coolant distributor pipe, at the left front on the engine.
- Central ground:
Behind a cover plate in front of the left bulkhead.
- Control unit:
In the passenger compartment, on the front passenger's side, above the glove compartment.

B23

Test chart for universal test adapter
Peugeot 505 Turbo



B24

Test chart for universal test adapter
Peugeot 505 Turbo



TEST STEP 8			
Operation		Reading	Testing
Program switch "V" in setting:	↓	Tester must read <u>0 ... 10 Ω</u>	<u>Component:</u> Ground connection for the output stage
Program switch "Ω" in setting:	14		
Test equipment: Motortester or multimeter (Ω-range)		<div style="display: flex; justify-content: space-around;"> <div>yes ↓ Continue testing with next test step.</div> <div>no ↓</div> </div>	<u>Operation:</u> Ground connection from control unit plug Term. 13
Scale: x 1 Ω			<u>Malfunction:</u> Resistance not within tolerance
Connection: Blue test sockets			
Operation in vehicle: -----			

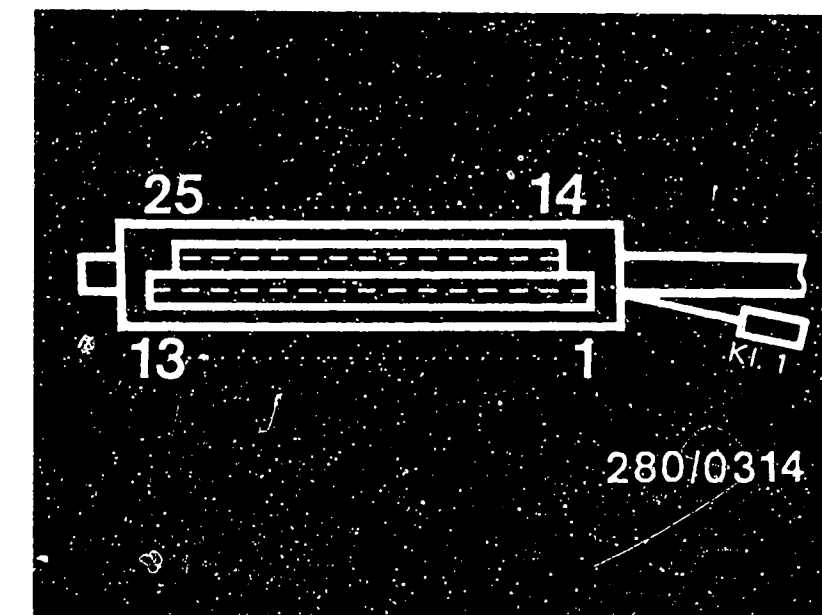
Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.
If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity (specified value approx. 0 Ω):

- From the control unit plug Term. 13 to the central ground.

Eliminate contact resistances at the plug connections.



Top view of control unit plug

Installation position of the components:

- Control unit:
In the passenger compartment, on the front passenger's side, above the glove compartment.
- Central ground:
Behind a cover plate in front of the left bulkhead.

C1


Test chart for universal test adapter
Peugeot 505 Turbo

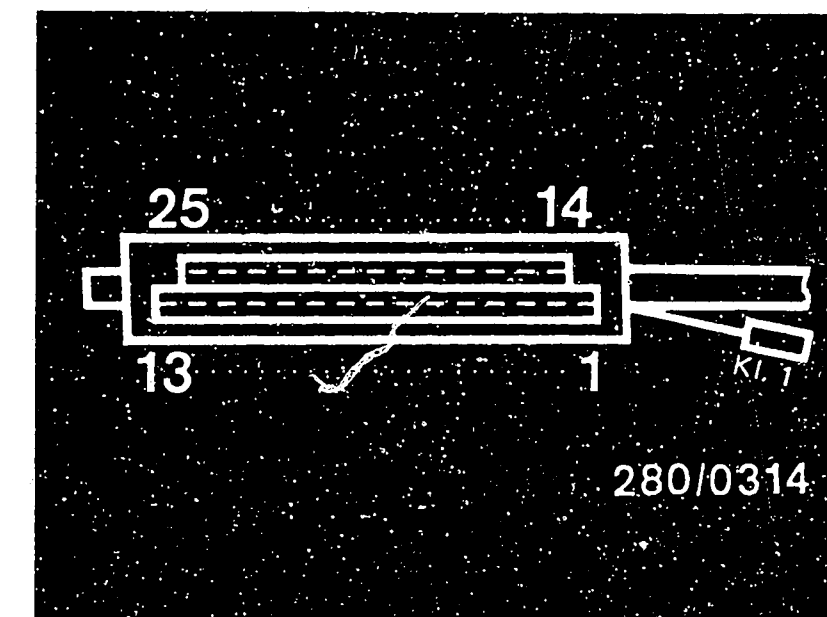


C2

Test chart for universal test adapter
Peugeot 505 Turbo

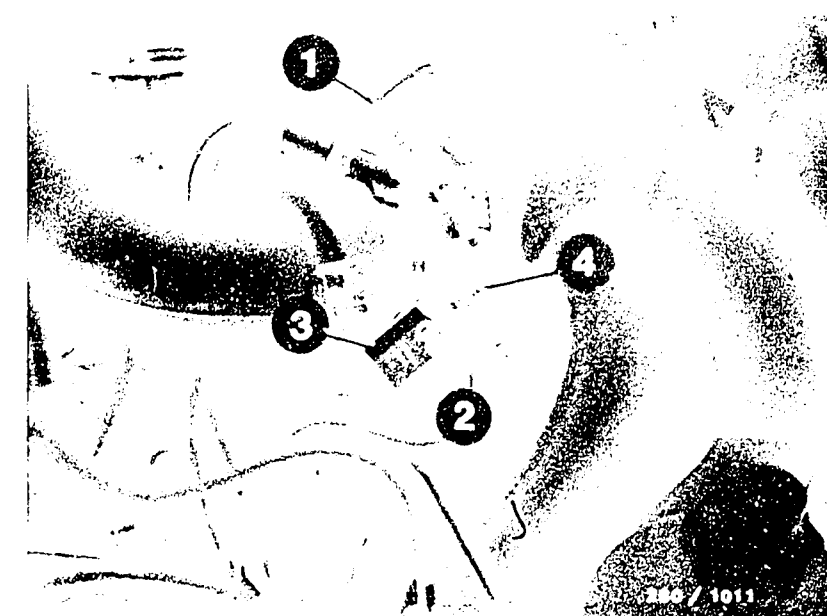


TEST STEP 9			
Operation		Reading	Testing
<u>Program switch "V"</u> in setting:		Tester must read <u>0 ... 10 Ω</u>	<u>Component:</u> Throttle valve switch (idle contact)
<u>Program switch "Ω"</u> in setting:			
<u>Test equipment:</u> Motortester or multimeter (Ω-range)		<div><div>yes</div><div>↓</div></div> <div>Continue testing with next test <u>step.</u></div>	<u>Operation:</u> Resistance of throttle valve switch Term. 2 and Term. 9/4
<u>Scale:</u> x 1 Ω			
<u>Connection:</u> Blue test sockets			
<u>Operation in the vehicle:</u> Accelerator pedal in at rest position			
		<div><div>no</div><div>↓</div></div>	<u>Malfunction:</u> Resistance not within tolerance



Top view of control unit plug

- 1 = Throttle valve lever
- 2 = Fastening screws
- 3 = Throttle valve switch
- 4 = Setting screw



Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.

If necessary, use wiring diagram.

Setting the throttle valve switch

Turn the setting screw for the throttle valve switch far enough so that the idle contact closes. (The microswitch clicks audibly.) Reading 0 Ω .

If not, take out and replace the throttle valve switch.

Checking the setting: Pull on the accelerator cable somewhat. The idle contact opens. (The microswitch clicks audibly.) Reading ∞ Ω .

Check the following leads with an ohmmeter for continuity (specified value approx. 0 Ω):

- From the control unit plug Term. 2 to the throttle valve switch Term. 2
- From the control unit plug Term. 9 to the throttle valve switch Term. 9/4
- Eliminate contact resistances in the plug connections.

C3


Test chart for universal test adapter
Peugeot 505 Turbo

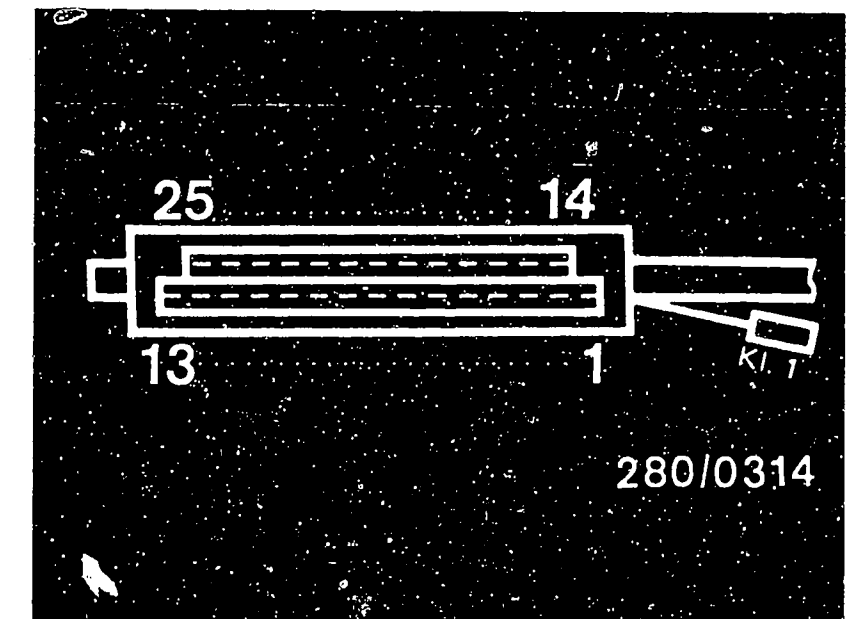


C4

Test chart for universal test adapter
Peugeot 505 Turbo



TEST STEP 10			
Operation		Reading	Testing
<u>Program switch "V"</u> in setting:		Tester must read <u>0 ... 10 Ω</u>	<u>Component:</u> Charge-air pressure switch
<u>Program switch "Ω"</u> in setting:	16		
<u>Test equipment:</u> Motortester or multimeter (Ω-range)		<div><div>yes</div><div>no</div></div> <div><div>↓</div><div>↓</div></div>	<u>Operation:</u> Resistance, charge-air pressure switch Term. 9/6 and Term. 2/1
<u>Scale:</u> x 1 Ω			
<u>Connections:</u> Blue test sockets			<u>Malfunction:</u> Resistance not within tolerance
<u>Operation in vehicle:</u> Step all the way down on the accelerator. In addition, subject charge-air pressure switch to 1.5 bar gauge press.			
Continue testing with next test step.			



Top view of control unit plug

Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.
If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity (specified value approx. 0 Ω):

- From the control unit plug Term. 2 to the charge-air pressure switch Term. 2/1
- From the control unit plug Term. 9 to the charge-air pressure switch Term. 9/6
- Eliminate contact resistances in the plug connections.

If the reading for resistance is still not within tolerance, take out and replace the charge-air pressure switch.

Installation position of the components:

- Control unit:
In the passenger compartment, on the front passenger's side, above the glove compartment.
- Charge-air pressure switch:
On the intake manifold, in front of the throttle valve.

C5

Test chart for universal test adapter
Peugeot 505 Turbo



C6

Test chart for universal test adapter
Peugeot 505 Turbo



Operation	Reading	Testing
Program switch "V" in setting:	↓ Tester must read 1.5 ... 2.5 kΩ	Component: Electronic ignition K-control unit
Program switch "Ω" in setting:	17	
Test equipment: Motortester or multimeter (Ω-range)	<div>yes</div> <div>↓</div> <div>Continue testing with next test step.</div> <div>no</div> <div>↓</div>	Operation: Resistance of full load output Term. 18
Scale: x 100 Ω		
Connection: Blue test sockets		Malfunction: Resistance not within tolerance
Operation in vehicle: -----		

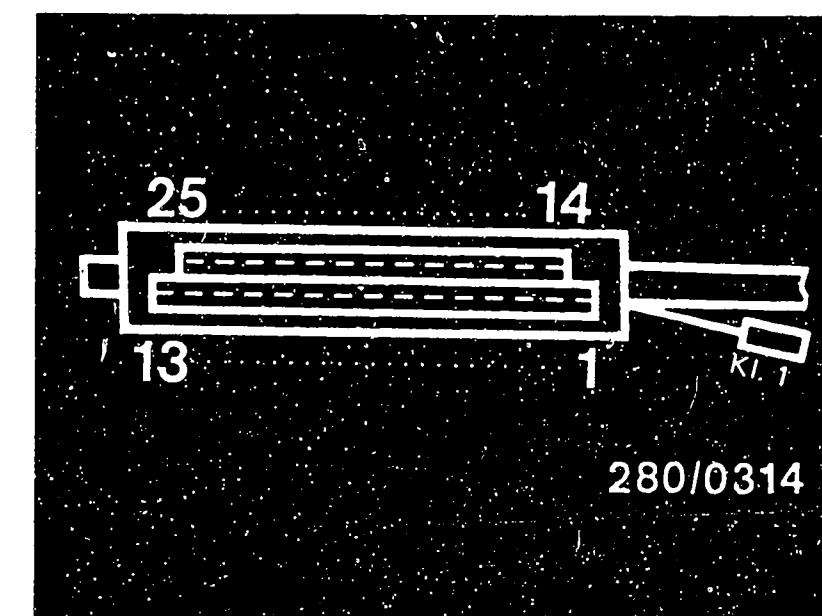
Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.
If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity
(specified value approx. 0 Ω):

- From the control unit plug Term. 3 to the electronic ignition K-control unit Term. 18.
- Eliminate contact resistances in the plug connections

If the reading for resistance is still not within tolerance, check the ignition system.



Top view of control unit plug

Installation position of the components:

- Control unit:
In the passenger compartment, on the front passenger's side, above the glove compartment.
- Electronic ignition K-control unit:
In the carpet casing under the front passenger's seat.

C7

Test chart for universal test adapter
Peugeot 505 Turbo



C8

Test chart for universal test adapter
Peugeot 505 Turbo



TEST STEP 12

Operation	Reading	Testing
Program switch "V" in setting:	Tester must read 7.0 ... 9.5 Ω	Component: Electric fuel-injection valves
Program switch "Ω" in setting:	at +20°C, 7.2 ... 10.0 Ω	
Test equipment: Motortester or multimeter (Ω-range)	at +80°C.	Operation: Resistance of all electric fuel-injection valves (in parallel).
Scale: x 1 Ω	yes	
Connection: Blue test sockets	no	Malfunction: Resistance not within tolerance
Operation in vehicle: -----	Continue testing with next test step.	

Trouble-shooting:

For testing, disconnect control unit plug from the test adapter.

If necessary, use wiring diagram.

Check the following leads with an ohmmeter for continuity
(specified value approx. 0 Ω):

- From the control unit plug Term. 12 to the electric fuel-injection valves.
- From the electric fuel-injection valves to the auxiliary relay Term. 87.
- Measurements of resistance on the electric fuel-injection valve.

At ambient temperature (+15°C ... +30°C): 15 ... 17.5 Ω

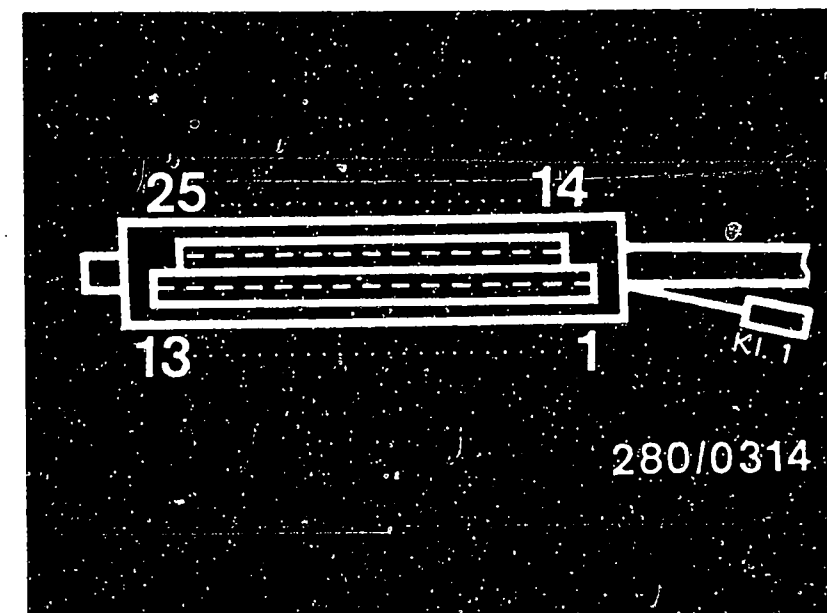
With engine at normal operating temperature (approx. +80°C): 17 ... 20 Ω

If the reading is too high: the valve coil has a break or a valve connector has dropped off. Check the sealing of the plug blades. Eliminate contact resistances.

If need be, take out and replace the electric fuel-injection valve(s).

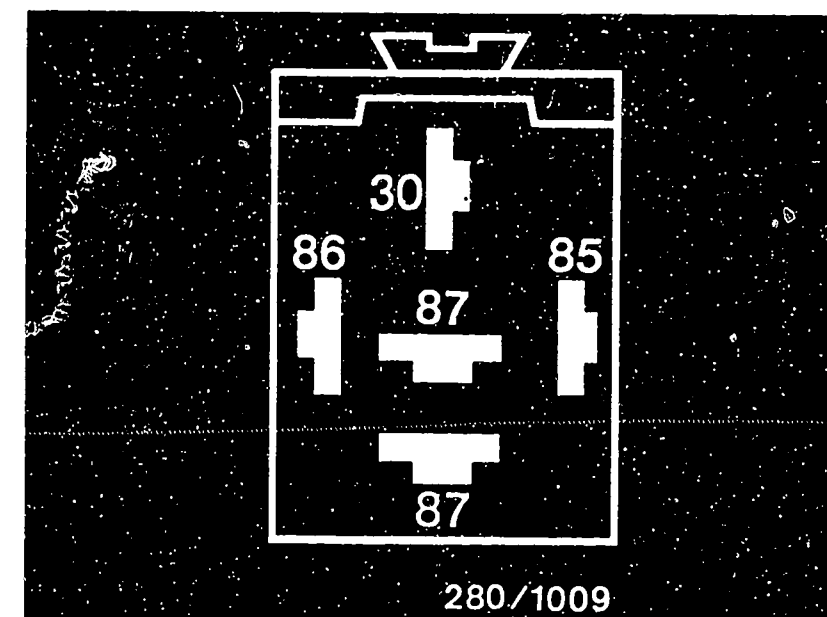
Installation position of the components:

- Electric fuel-injection valves: In the individual intake tubes.



Top view of control unit plug

Auxiliary relay disconnected.
Top view of plug



C9

Test chart for universal test adapter
Peugeot 505 Turbo



C10

Test chart for universal test adapter
Peugeot 505 Turbo



The electrical testing using the universal test adapter has been completed.

The fuel pressure test must now be run.

The fuel pressure test has been described on
Coordinates C12...C23.

C11

Test chart for universal test adapter

Peugeot 505 Turbo



FUEL PRESSURE TEST

Is the electric fuel pump running? (Check by listening)

- Is the control relay triggering O.K.?
Term. 30, 15, 50, 1, and 31.
- Is there voltage at Term. 87 and the electric fuel pump?
- Is the ground lead O.K.?

no

Check the control relay

Turn the connecting socket around, with the control relay plugged on

- At Term. 30, battery voltage
- At Term. 15, vehicle system voltage with ignition "ON"
- At Term. 50, vehicle system voltage at start.
- At Term. 1, TN signal from the electronic ignition K-control unit Term. 17.
- At Term. 31, vehicle ground
- Start the engine.
- If there is not voltage at Term. 87, take out and replace the control relay.
- Is the pump fuse O.K.?
- Is voltage at the connection terminals for the electric fuel pump min. 12 V?
- If not, check the ground lead
- If yes, take out and replace the electric fuel pump.

yes

Is the fuel pressure O.K.?

- Test specification:
2.8 ... 3.2 bar
- Is this being met?

no

Checking fuel pressure

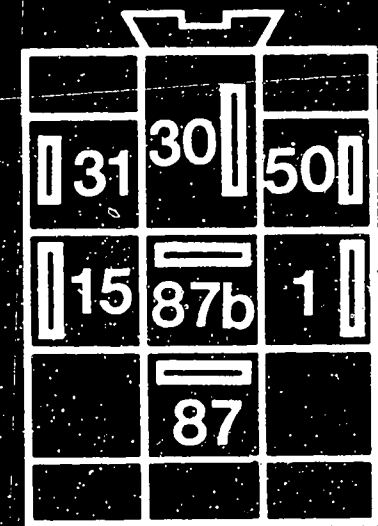
- Connect pressure gauge for the pressure tester to the supply inlet on the fuel distribution pipe. Use connector KDJE-P100/14.

Caution: When releasing the screw connections, make sure no fuel gets on hot portions of the engine.

yes

Continued on C16/C17

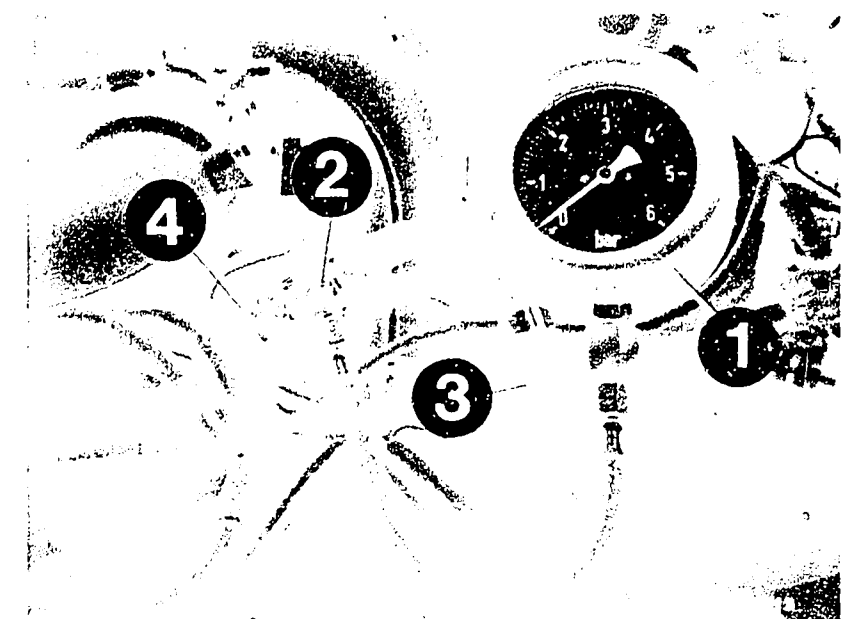
Continued on C14/C15



280/0497

Control relay connection socket (back)

- 1 = Pressure gauge
- 2 = Connector KDJE-P100/14
- 3 = Fuel delivery line from the fuel filter
- 4 = Fuel distribution pipe



C12

Fuel pressure test
Peugeot 505 Turbo



C13

Fuel pressure test
Peugeot 505 Turbo



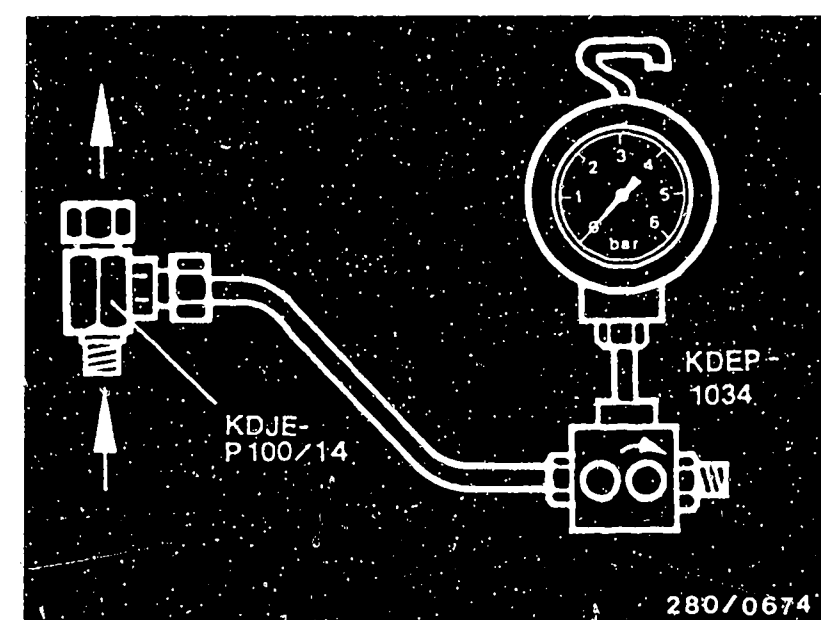
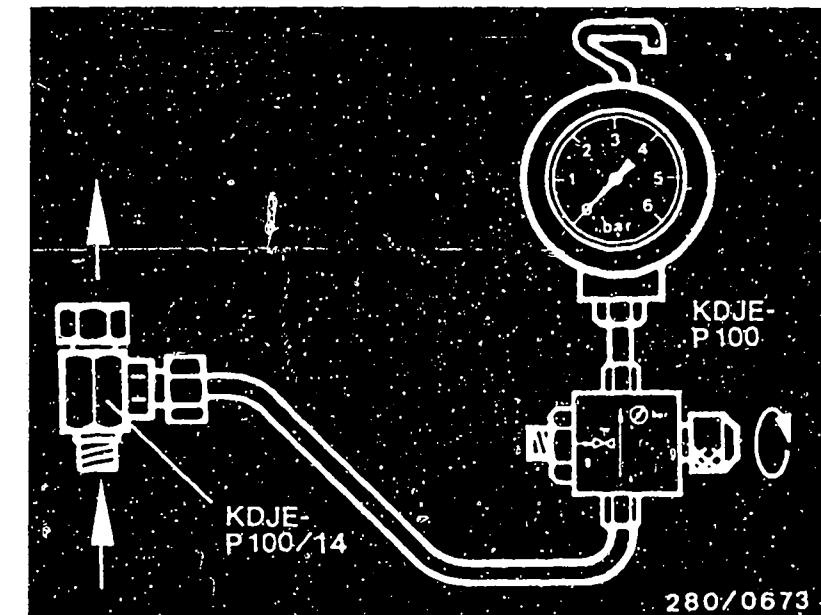
Fuel pressure test (continued)

Checking fuel pressure

Unscrew the supply pressure line from the fuel distribution pipe and put in the connector KDJE-P100/14. When using pressure tester KDJE-P100, the valve screw must be turned closed. For KDEP 1034, only the valve screw at the right must be closed. Make certain the connections do not leak.

yes

Continued on C16/C17



C14

Fuel pressure test
Peugeot 505 Turbo



C15

Fuel pressure test
Peugeot 505 Turbo



Fuel pressure test (continued)

Fuel pressure O.K.?
Pressure regulator O.K.?
Test specification:
2.8 ... 3.2 bar
Is this being met?

no

• Jump the safety circuit. Disconnect the control relay, insert a jumper between Term. 87 and Term. 30 in the connecting socket. The electric fuel pump and the in-tank pre-supply pump must run.
Fuel pressure
Test specification: 2.8 ... 3.2 bar

Caution!

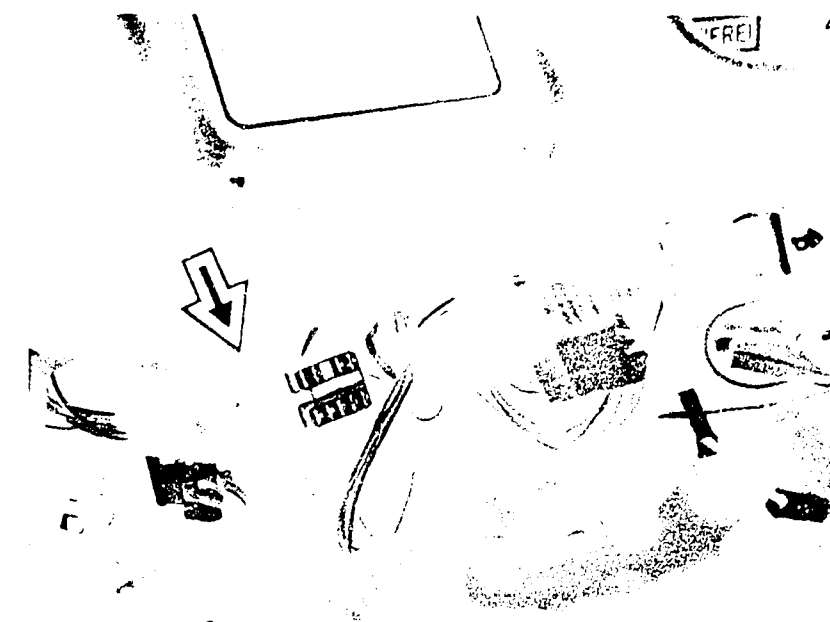
Pull out the jumper and plug in the control relay.

Have engine run at idle: fuel pressure approx. 2.5 bar

yes

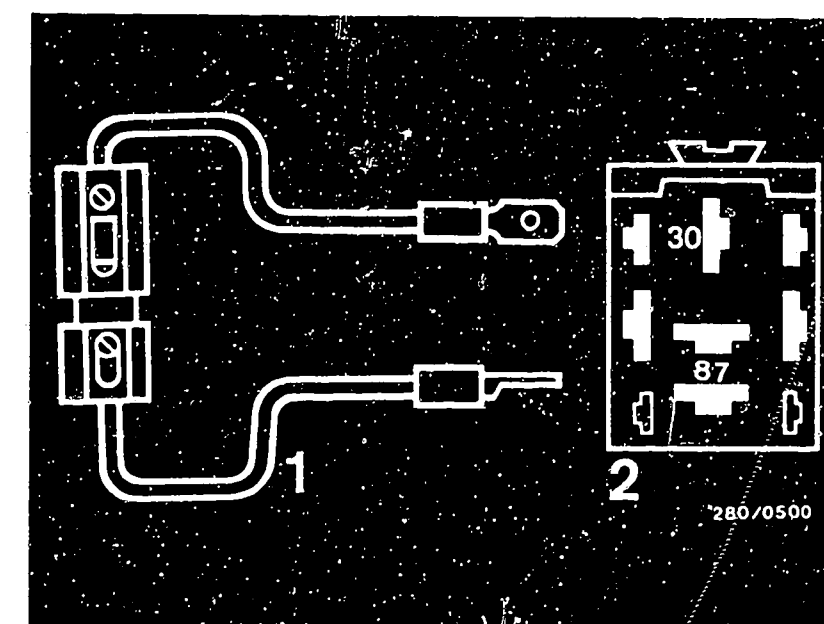
Continued on C20/C21

Continued on C18/C19



Arrow = Control relay

1 = Jumper with fuse holder and 10 A fuse
2 = Top view of connection socket



C16

Fuel pressure test
Peugeot 505 Turbo



C17

Fuel pressure test
Peugeot 505 Turbo



Fuel pressure test (continued)

Checking the pressure regulator

Disconnect the control relay and insert a jumper between Term. 87 and Term. 30 in the connecting socket. The electric fuel pump must run.

Fuel pressure: 2.8 ... 3.2 bar

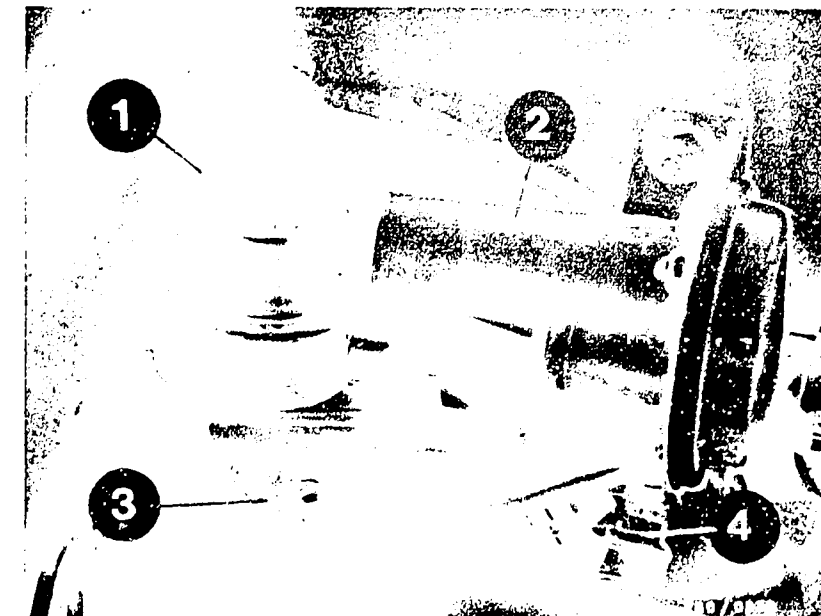
If the fuel pressure drops below 2.8 bar:

- Slowly crimp off the fuel return line.
(Caution: Do not load the pressure gauge beyond 6 bar!)

If the pressure rises above 4 bar, take out and replace the pressure regulator. The fuel pressure regulator is fastened to the fuel distribution pipe via two fastening screws and an O-ring. After the pressure regulator is taken out, the O-ring and the flat ring must be taken out and replaced. (Use parts kit 1 287 010 704.)

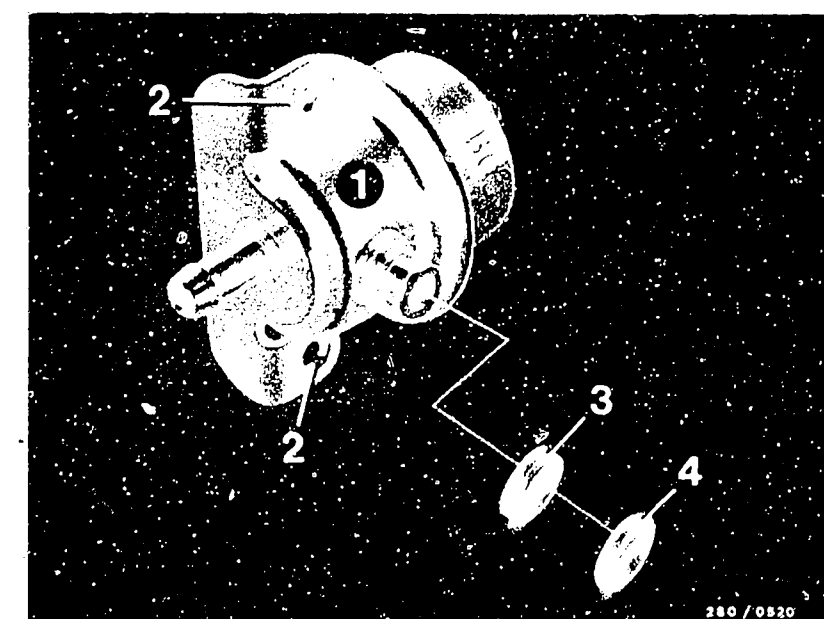
yes

Continued on C20/C21



- 1 = Pressure regulator
- 2 = Auxiliary-air device
- 3 = Fuel return line
- 4 = Electric fuel-injection valve

- 1 = Pressure regulator
- 2 = Fastening holes
- 3 = Flat ring
- 4 = O-ring



C18

Fuel pressure test
Peugeot 505 Turbo



C19

Fuel pressure test
Peugeot 505 Turbo



Fuel pressure test (continued)

yes

Does the fuel pressure remain almost constant after the engine is shut off?

Test specification:
2.8 ... 3.2 bar

Is this being met?

no

- Check the fuel pressure line and filter for open passage.
- In-tank pre-supply pump not operating.
- Filter in the tank is clogged.
- Corrosion in the tank.

If the fuel pressure exceeds 3.2 bar:

- The fuel return lead is clogged or pinched
- Take out and replace the pressure regulator.

Caution!

It is absolutely necessary to remove the jumper after completion of the testing and to plug the control relay back in.

The fuel pressure drops quickly after the hot engine is shut off.

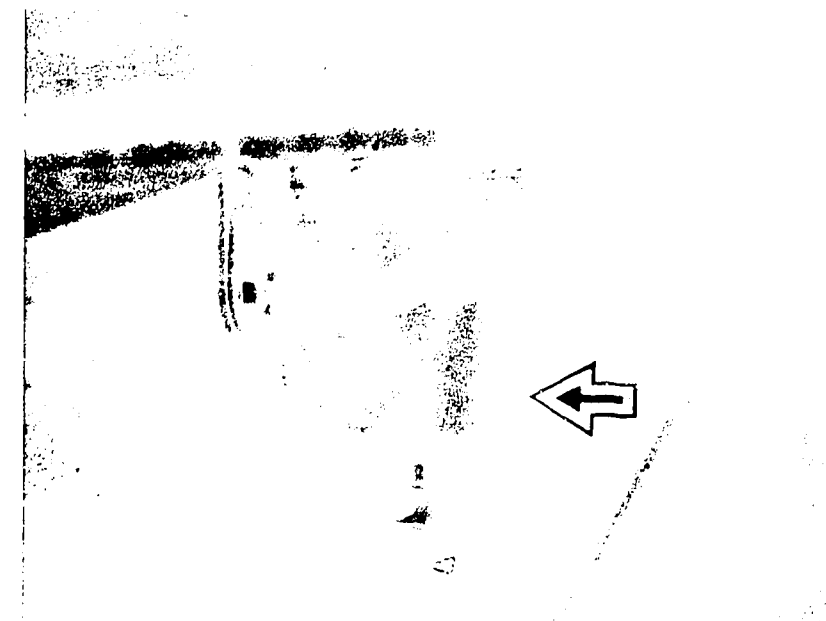
- Check the fuel system for leaks.

Fuel pressure: 2.8 ... 3.2 bar

Disconnect the jumper and watch the pressure gauge. The fuel pressure must still be min. 1.0 bar after approx. 20 min.

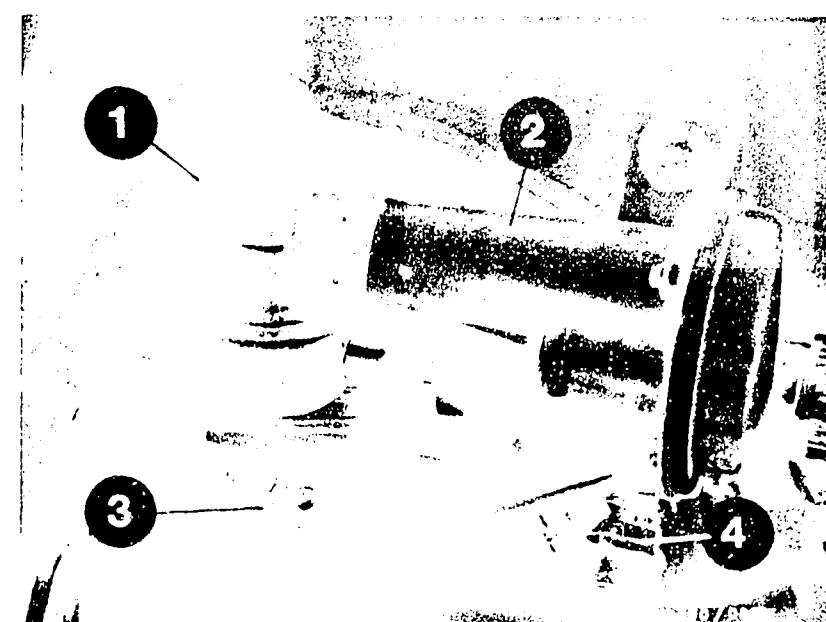
yes

Continued on C22/C23



The fuel filter (arrow) is located in front of the rear axle on the left.

- 1 = Pressure regulator
- 2 = Auxiliary-air device
- 3 = Fuel return line
- 4 = Electric fuel-injection valve



C20

Fuel pressure test
Peugeot 505 Turbo



C21

Fuel pressure test
Peugeot 505 Turbo



Fuel pressure test (continued)

yes

If behavior is incorrect:

- Check connections between the components and the fuel hoses and lines for leaks.
- Pressure regulator (diaphragm)
- Electric fuel-injection valves (needle seat, the valve is not closing correctly.)
- Electric fuel pump (non-return valve leaking).
- Fuel filter leaking.
- Electric starting valve leaking

Take out and remove the pressure gauge. Restore the connection between the fuel pressure delivery line and the fuel distribution pipe. Remove the jumper and plug the control relay back into the connection socket. Fuel pressure testing has been completed. If the defect has not been located or further instructions are required for correction of the defect, proceed according to the trouble-shooting chart you have selected.

Detailed trouble-shooting chart (Coordinates B3...B4)

Targeted trouble-shooting chart (Coordinates B5...B8)

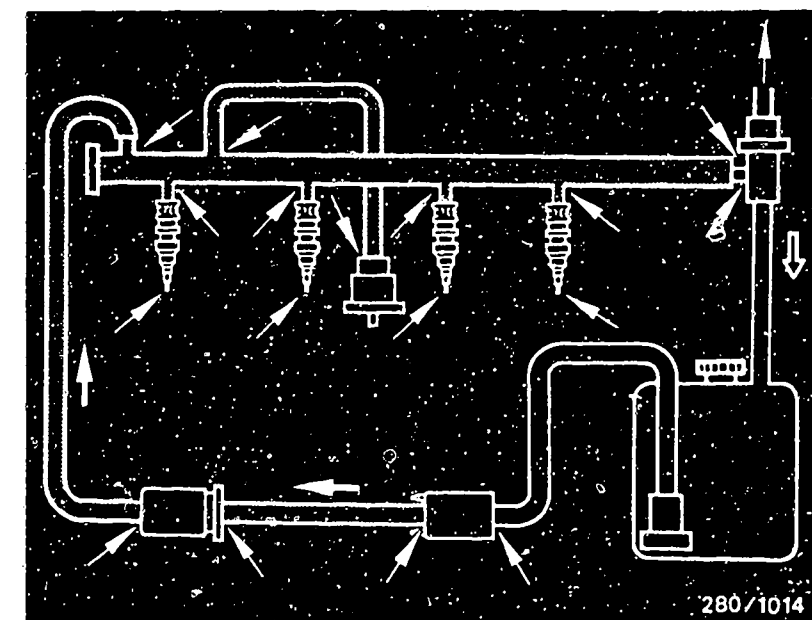


Diagram of fuel lines

Arrows indicate connecting points between hoses and components.



STARTING MOTOR TURNS, ENGINE DOES NOT START OR STARTS ONLY WITH DIFFICULTY

Trouble-shooting program according to customer complaint

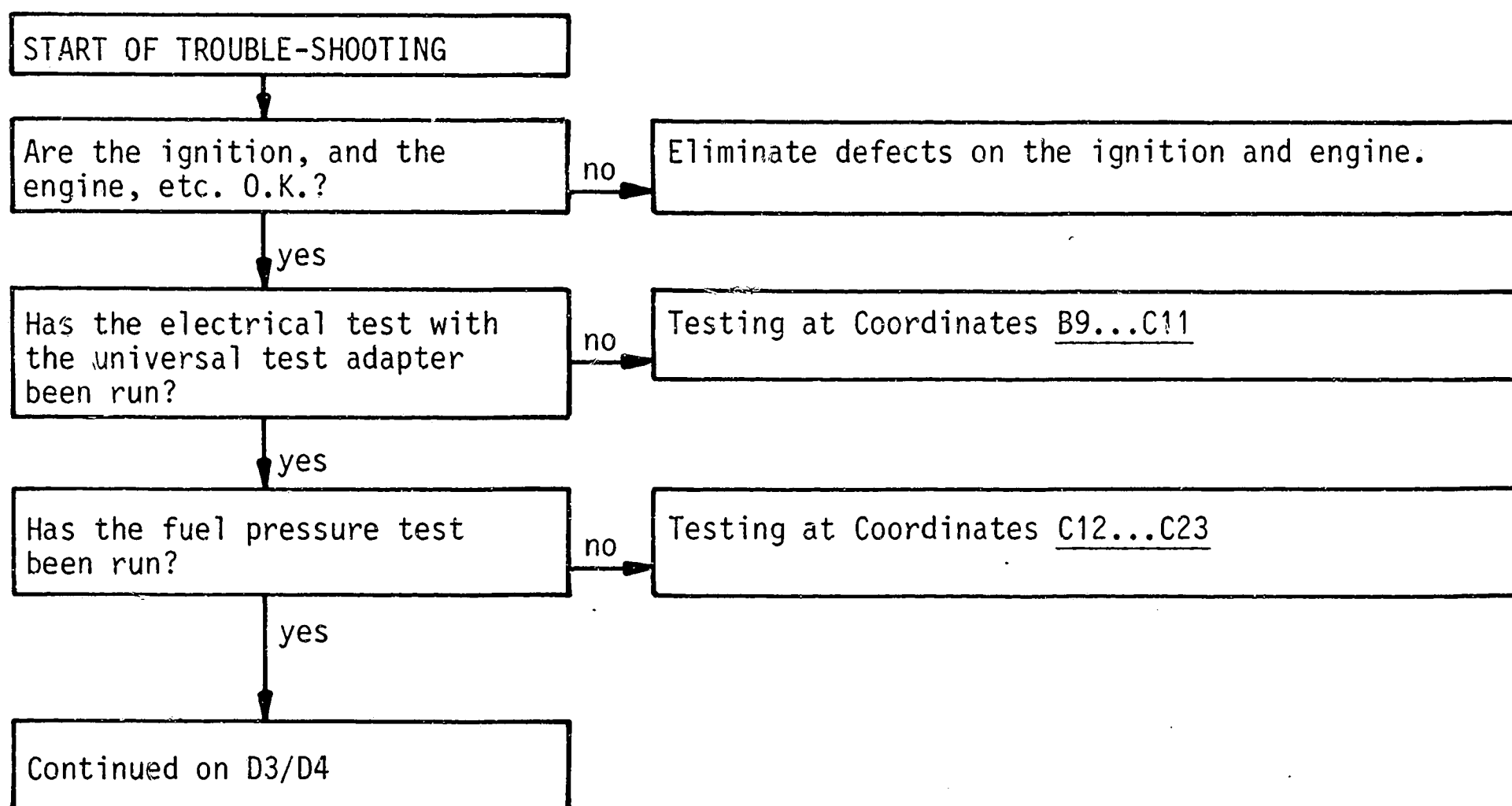
How to use the program

The testing is organized in three columns of boxes:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the tests and settings on components.
- The column at the right contains the figures that go with the text and the legend for the items in the figures.

If it is possible to answer the questions unambiguously with "yes" even without a test, proceed to the question next below.

On the other hand, if the answer is "no", and a defect is suspected, you must shift to the column of boxes in the middle and carry out the tests indicated there. After completion of the testing, the trouble-shooting is continued at that point at which that shift was made.



D1

Engine does not start
Peugeot 505 Turbo



D2

Engine does not start
Peugeot 505 Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

Is the electric starting valve O.K.?

no

Functional test:

Check the voltage supply for the electric starting valve at start. To do so, disconnect the plug from the electric starting valve and connect a voltmeter to Term. 29 and Term. 30 of the electric starting valve plug.

1. At engine temperature less than +30°C:
Voltage reading min. 6 V

2. With engine at normal operating temperature, above +40°C:
Voltage reading of approx. 0 V.

Check the following leads with an ohmmeter for continuity (specified value approx. 0 Ω):

Lead from the electric starting valve Term. 30 to the thermotime switch Term. W. Lead from the electric starting valve Term. 29 to the thermotime switch Term. G. Lead from the electric starting valve Term. 29 to the ignition-and-starting switch Term. 50. Check the ground connection for the thermotime switch.

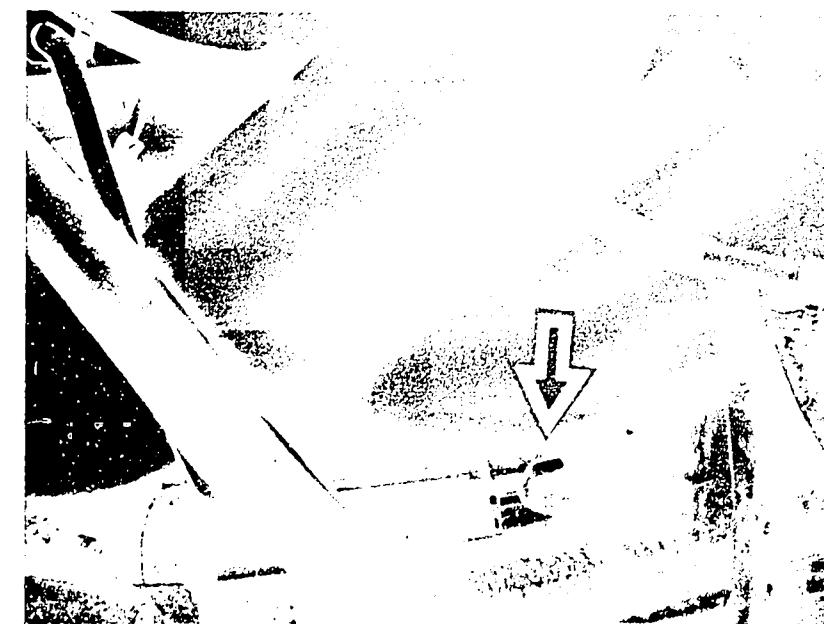
Checking the electric starting valve electrically:

Connect an ohmmeter to the electric starting valve (disconnect the connecting plug):
Specified value 3.5...4.5 Ω

yes

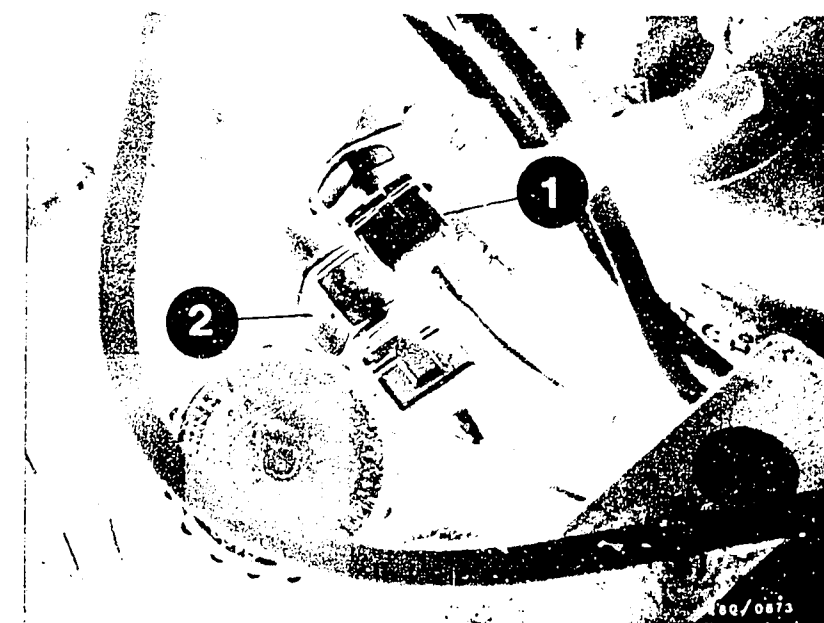
Continued on D7/D8

Continued on D5/D6



Arrow = Electric starting valve

1 = Temperature sensor II
2 = Thermotime switch



D3

Engine does not start
Peugeot 505 Turbo



D4

Engine does not start
Peugeot 505 Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

yes

Continued on D7/D8

Checking the electric starting valve mechanically:

Take out the electric starting valve on the intake manifold and hold it in a container. (Caution: Fire hazard!) When starting, and at ambient temperatures less than $+30^{\circ}\text{C}$, the electric starting valve must spray fuel (max. 8 sec.). With the engine at normal operating temperature greater than $+40^{\circ}\text{C}$, it is not permissible for the electric starting valve to spray fuel.

With the ignition switched on and the pressure built up, it is likewise not permissible for the electric starting valve to spray fuel.

Test for spraying above $+40^{\circ}\text{C}$ as follows:

Disconnect the plug from the thermotime switch and connect Term. W to ground.

Checking the electric starting valve for leaks:

• Taken out

Take the electric starting valve out.

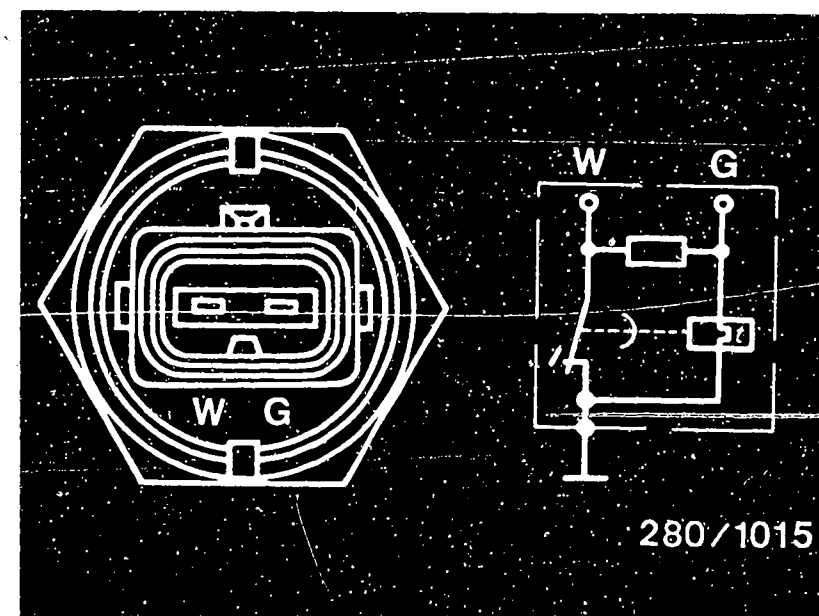
(Caution: Fire hazard!) The fuel and electrical lines remain connected. (Place a collector basin under the electric starting valve.)

Build up the fuel pressure. Pull the control relay from the socket and jump Term. 30 and Term. 87 with a jumper cable.

Test specification: A max. of 1 drop is permissible at the opening of the valve within one minute.

Caution!

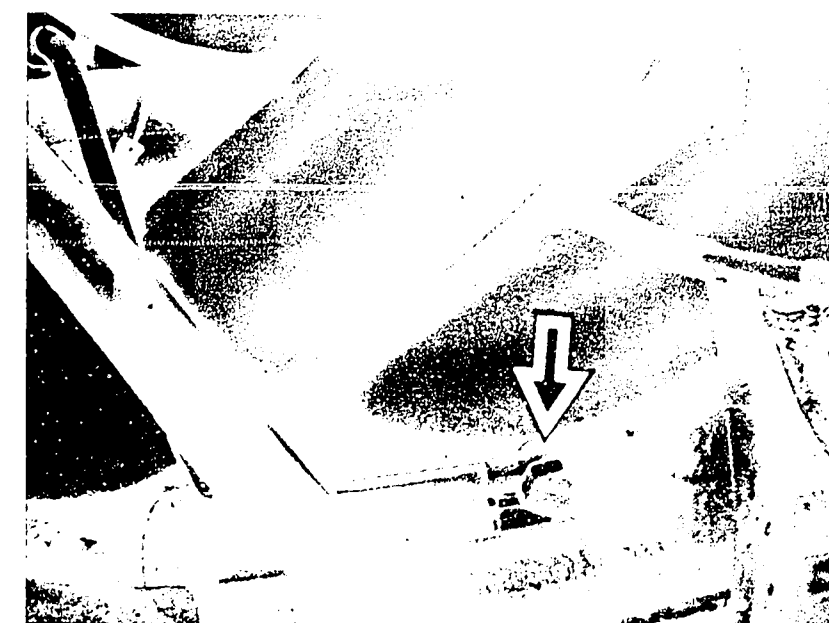
After completion of the test, remove the jumper and plug the control relay back into the connecting socket.



280/1015

Thermotime switch

Arrow = Electric starting valve



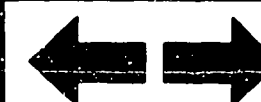
D5

Engine does not start
Peugeot 505 Turbo



D6

Engine does not start
Peugeot 505 Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

Is the thermotime switch O.K.?

no

Electrical test

Check the thermotime switch as follows:
Disconnect the plug and take measurements directly on the thermotime switch with an ohm-meter:

- Between Term. "G" and ground
Ambient temperature (less than +30°C):

25 ... 40 Ω

With engine at normal operating temperature
(above +40°C):

50 ... 80 Ω

- Between Term. "W" and ground
Ambient temperature (less than +30°C):

0 Ω

With engine at normal operating temperature
(above +40°C):

100 ... 160 Ω

- Between Term. "G" and "W"
Ambient temperature (less than +30°C):

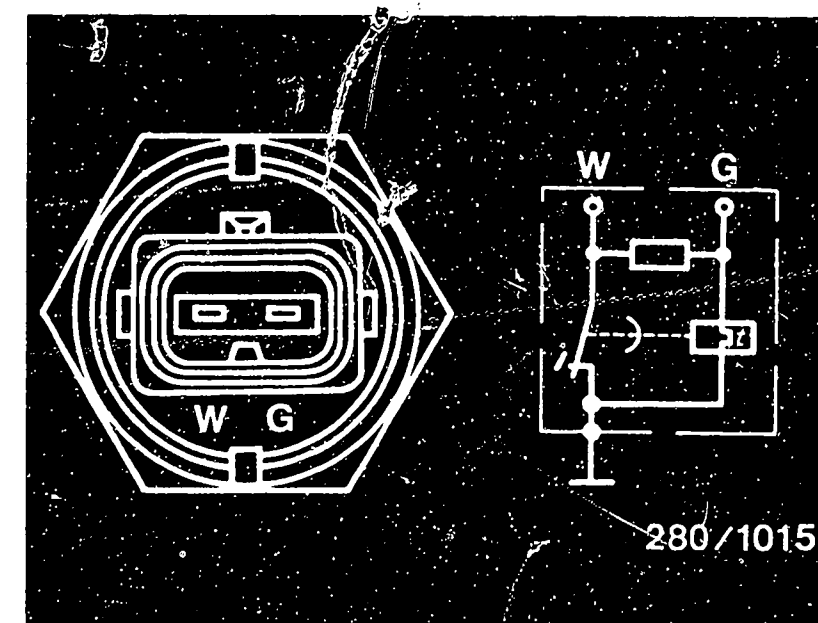
25 ... 40 Ω

With engine at normal operating temperature
(above +40°C):

50 ... 80 Ω

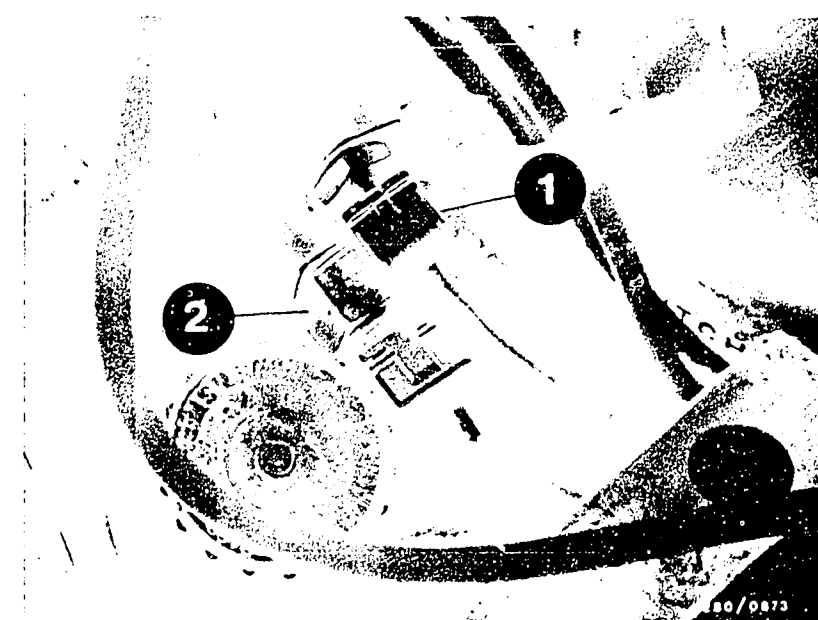
yes

Continued on D9/D10



280/1015

- 1 = Temperature sensor II
- 2 = Thermotime switch



D7

Engine does not start
Peugeot 505 Turbo



D8

Engine does not start
Peugeot 505 Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

yes

Is the auxiliary-air device
O.K. mechanically?

Open cross-section:

- Cold → open?
- Warm → closed?
- Drop in engine speed when the hose is crimped off? (Cold engine.)

no

Testing:

- Visual checking of the auxiliary-air device:
Disconnect the hoses and look through it. (To do so, use a small mirror if necessary.) When cold, the cross-section must be partially open. When the engine is warm, it must be closed. If not, take out and replace the auxiliary-air device.
- Functional test of the auxiliary-air device:
With the engine cold, crimp off the hose to the auxiliary-air device. The engine speed must drop off. With the engine warm, crimp off the hose to the auxiliary-air device. It is permissible for the engine speed to drop off only unnoticeably. Otherwise, take out and replace the auxiliary-air device. (Be careful of the direction of the through flow.)

yes

Is the electrical operation of
the auxiliary-air device
(voltage supply, ground lead,
resistance) O.K.?

no

Start the engine.

- Voltage at the lead plug min. 12 V. If not, check the following leads for continuity (specified value approx. 0 Ω):
- From Term. 26 to the ground terminal.
- From Term. 72 to the control relay Term. 87b.
- Resistance of the auxiliary-air device 20...55 Ω (lead plug disconnected).
If the resistance is not within tolerance, take out and replace the auxiliary-air device.

yes

Continued on D11/D12



1 = Auxiliary-air device

D9

Engine does not start
Peugeot 505 Turbo



D10

Engine does not start
Peugeot 505 Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does the air-flow sensor flap move freely?
- Does the air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerance?

Between Term. 8 and Term. 9:

160 ... 300 Ω

Between Term. 7 and Term. 5
(deflect the air-flow sensor flap):

60 ... 1000 Ω

no

Testing:

- Unscrew the air-flow sensor from the air filter housing.
Open the air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must return on its own to the stop. The air-flow sensor flap must not stick when being opened. Watch for friction markings. If the inside of the air-flow sensor is very dirty, clean it, and rub it out with a lint-free rag. If there are friction markings, the air-flow sensor must be taken out and replaced.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent out of shape. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specification: 160 ... 300 Ω
Connect the ohmmeter to Term. 7 and Term. 5 of the air-flow sensor.
Deflect the air-flow sensor flap all the way.
Test specification: 60 ... 1000 Ω

Caution! After completion of the test, the air-flow sensor must be screwed back onto the air filter housing.

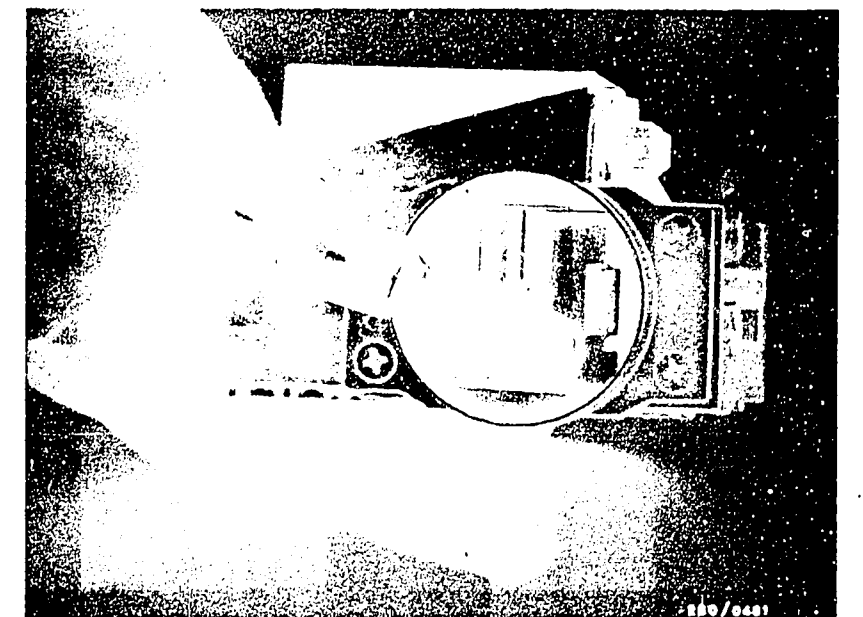
yes

Continued on D13/D14



1 = Air-flow sensor
2 = CO-adjusting screw

Pressing on the sensor flap in the air-flow sensor.



D11

Engine does not start
Peugeot 505 Turbo



D12

Engine does not start
Peugeot 505 Turbo



Starting motor turns , engine does not start or starts only with difficulty (continued)

yes

Are all hoses correctly put on, without kinking or damage? Visual inspection.

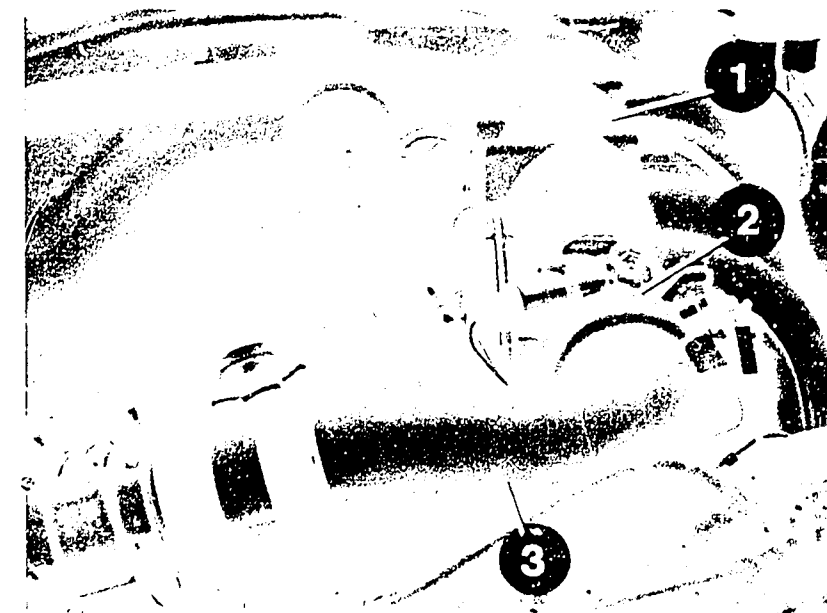
- Has the air intake system been tested for leaks with 0.3 bar gauge pressure?

no

- Check that all the hoses on the air intake system and the fuel line system are put on correctly without kinking or damage. If need be, take out and replace hoses. Eliminate leaks by using new seals or by tightening the connecting screws.
- Testing for leaks:
Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Take off the hose after the auxiliary-air device and, using a compressed air gun, blow air (0.3 bar gauge pressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve all the way. Brush or spray all seal locations with soapy water. Leaks can also occur at the following points on the engine: The oil dipstick is not inserted firmly, defective cover seal for the oil filler neck, etc. Bubbling or foaming indicates leaks.

yes

Continued on D15/D16



- 1 = Intake manifold
- 2 = Throttle-valve assembly
- 3 = Air guide pipe

D13

Engine does not start
Peugeot 505 Turbo



D14

Engine does not start
Peugeot 505 Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

yes

The trouble-shooting program
for the customer complaint

"Starting motor turns, engine
does not start or starts only
with difficulty,"

has been completed.

Is the defect corrected?

no

Other possible defects:

- Customer complaint incorrectly identified (see Coordinates B3...B8).
If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart". (Coordinates B3/B4).
- Engine not O.K. mechanically (compression, valve setting, engine timing, wear on camshaft, turbocharger or blow-off valve).

D15

Engine does not start
Peugeot 505 Turbo



D16

Engine does not start
Peugeot 505 Turbo



ENGINE STARTS AND THEN DIES

Trouble-shooting program according to customer complaint

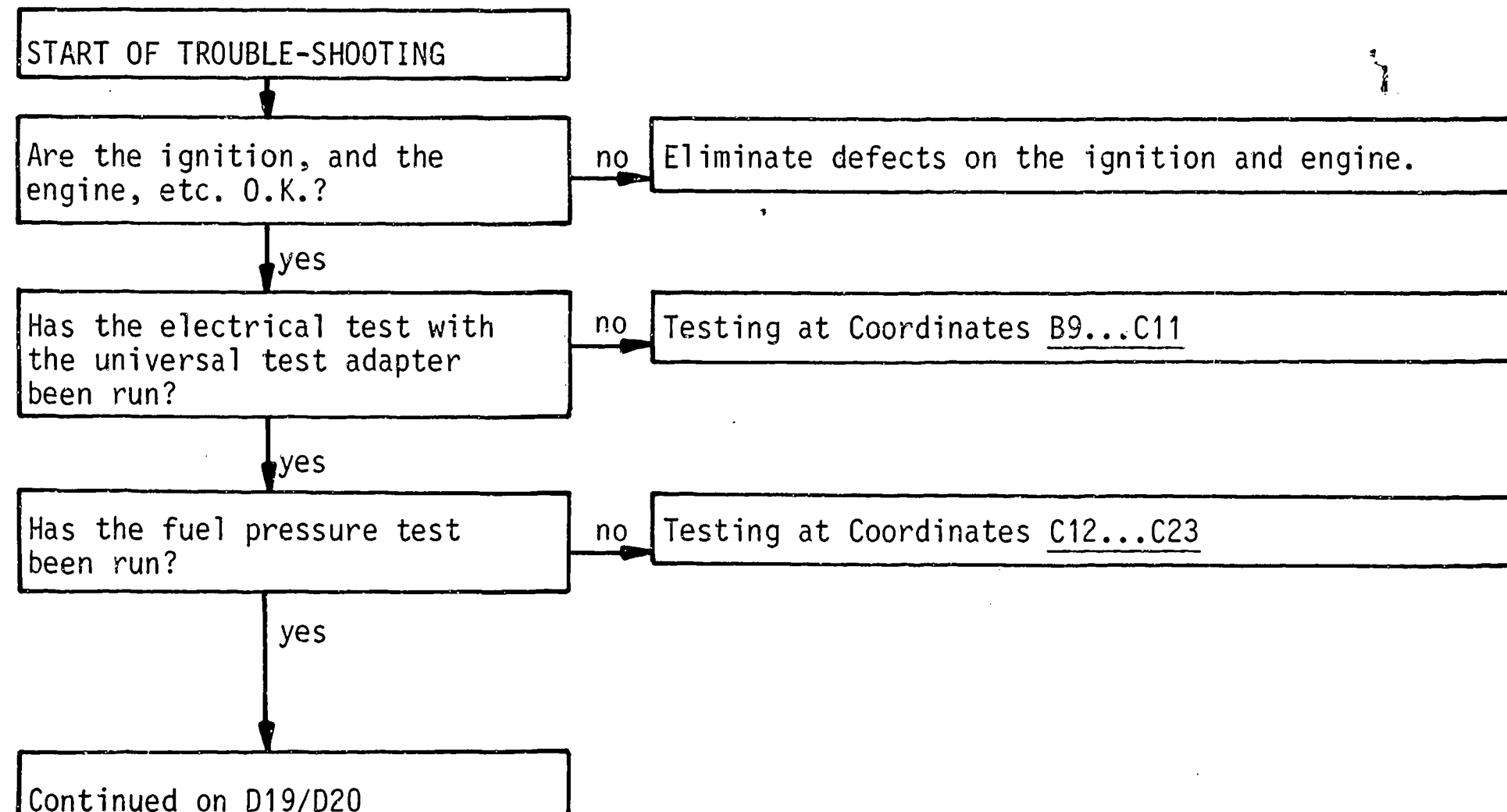
How to use the program

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- The column at the left contains the questions for the tests being run.
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- The column at the right contains the figures that go with the text and the legend for the items in the figures.

If it is possible to answer the questions unambiguously with "yes" even without a test, proceed to the question next below.

On the other hand, if the answer is "no", and a defect is suspected, you must shift to the column of boxes in the middle and carry out the tests indicated there. After completion of the testing, the trouble-shooting is continued at that point at which that shift was made.



D17

Engine starts and then dies
Peugeot 505 Turbo



D18

Engine starts and then dies
Peugeot 505 Turbo



Engine starts and then dies (continued)

Is the electric starting valve O.K. with regard to leaks?
● Max. allowable 1 drop/min.

no

Checking the electric starting valve for leaks:

- Taken out
Take the electric starting valve out.
(Caution: Fire hazard!) The fuel and electrical lines remain connected. (Place a collector basin under the electric starting valve.) Build up the fuel pressure. Pull the control relay from the socket and jump Term. 30 and Term. 87 with a jumper cable.

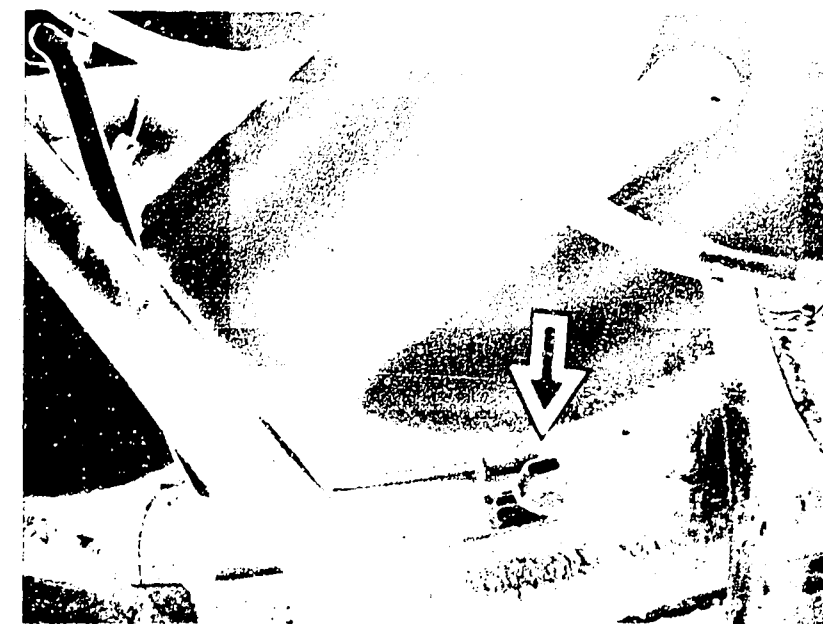
Test specification: A max. of 1 drop is permissible at the opening of the valve within one minute.

Caution!

After completion of the test, remove the jumper and plug the control relay back into the connecting socket.

yes

Continued on D21/D22



Arrow = Electric starting valve

D 19

Engine starts and then dies
Peugeot 505 Turbo

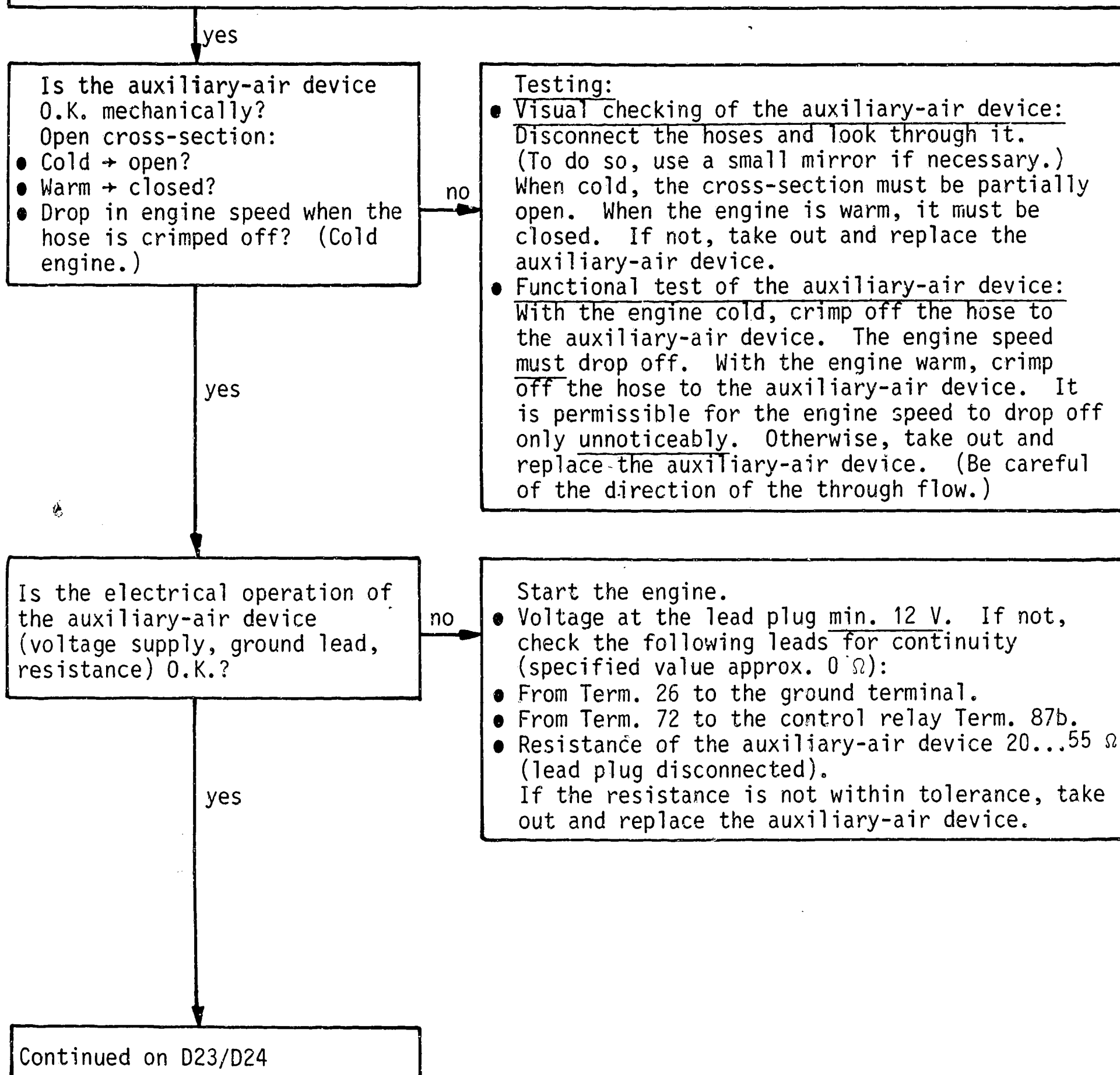


D 20

Engine starts and then dies
Peugeot 505 Turbo



Engine starts and then dies (continued)



1 = Auxiliary-air device



Engine starts and then dies (continued)

yes

Are all hoses correctly put on, without kinking or damage? Visual inspection.

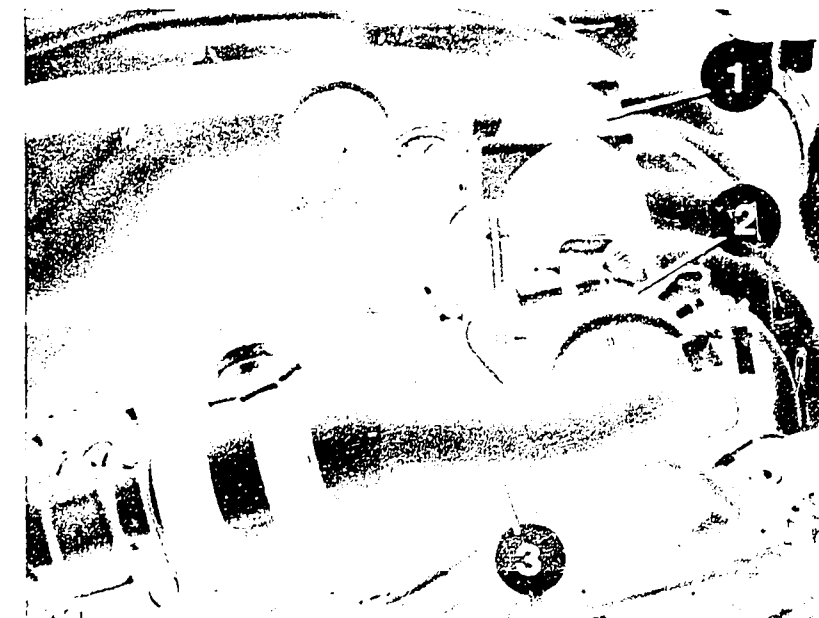
- Has the air intake system been tested for leaks with 0.3 bar gauge pressure?

no

- Check that all the hoses on the air intake system and the fuel line system are put on correctly without kinking or damage. If need be, take out and replace hoses. Eliminate leaks by using new seals or by tightening the connecting screws.
- Testing for leaks:
Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Take off the hose after the auxiliary-air device and, using a compressed air gun, blow air (0.3 bar gauge pressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve all the way. Brush or spray all seal locations with soapy water. Leaks can also occur at the following points on the engine: The oil dipstick is not inserted firmly, defective cover seal for the oil filler neck etc. Bubbling or foaming indicates leaks.

yes

Continued on E1/E2



- 1 = Intake manifold
2 = Throttle-valve assembly
3 = Air guide pipe

D23

Engine starts and then dies
Peugeot 505 Turbo



D24

Engine starts and then dies
Peugeot 505 Turbo



Engine starts and then dies (continued)

yes

The trouble-shooting program
for the customer complaint.

"Engine starts and then dies,"
has been completed.

Is the defect corrected?

no

Other possible defects:

- Customer complaint incorrectly identified (see Coordinates B3...B8).
If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart". (Coordinates B3/B4).
- Engine not O.K. mechanically (compression, valve setting, engine timing, wear on camshaft, turbocharger or blow-off valve).

E1

Engine starts and then dies
Peugeot 505 Turbo



E2

Engine starts and then dies
Peugeot 505 Turbo



ROUGH IDLE, INCORRECT IDLE SPEED

Trouble-shooting program according to customer complaint

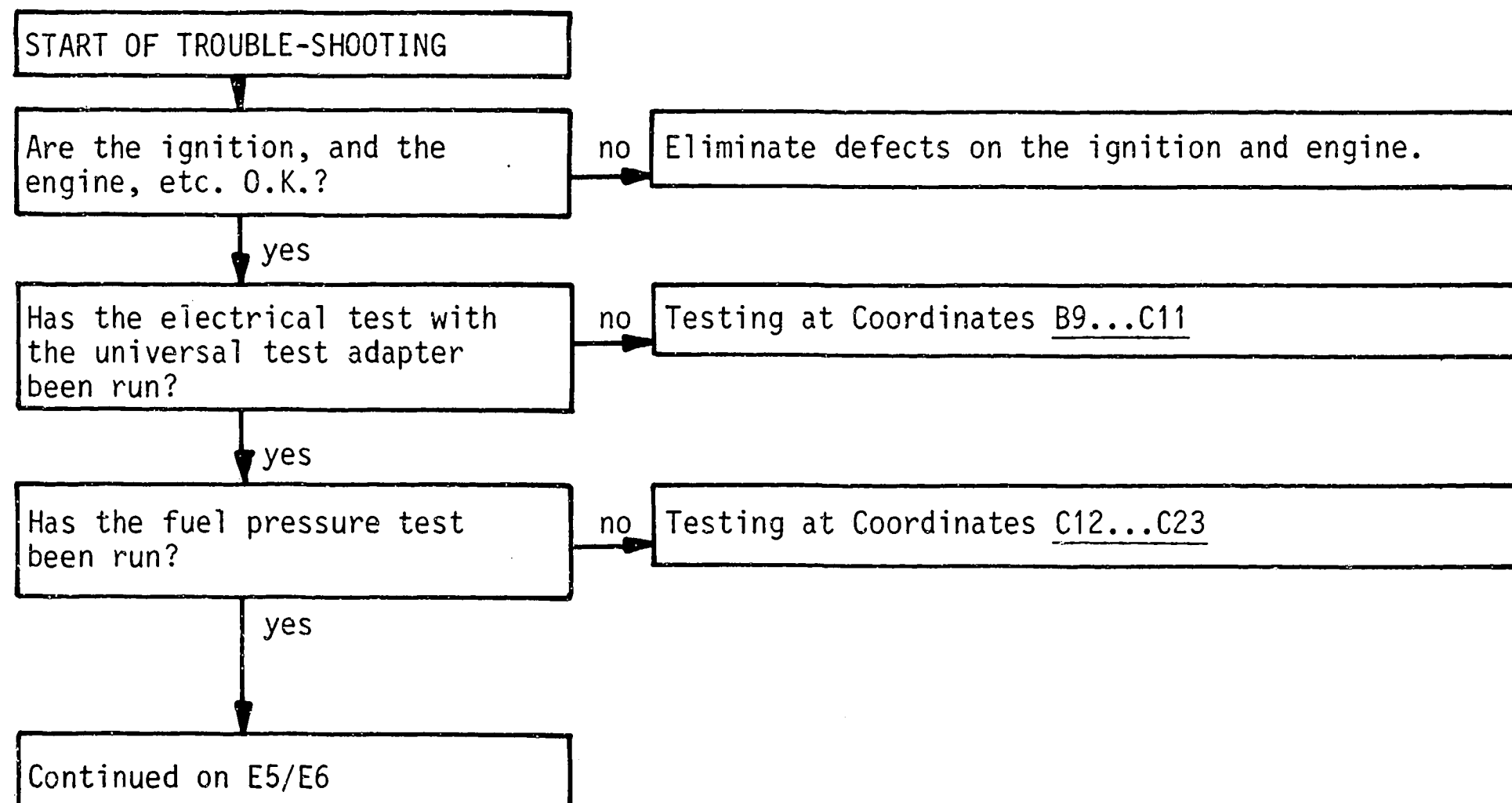
How to use the program

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- The column at the right contains the figures that go with the text and the legend for the items in the figures.

If it is possible to answer the questions unambiguously with "yes" even without a test, proceed to the question next below.

On the other hand, if the answer is "no", and a defect is suspected, you must shift to the column of boxes in the middle and carry out the tests indicated there. After completion of the testing, the trouble-shooting is continued at that point at which that shift was made.

**E3**

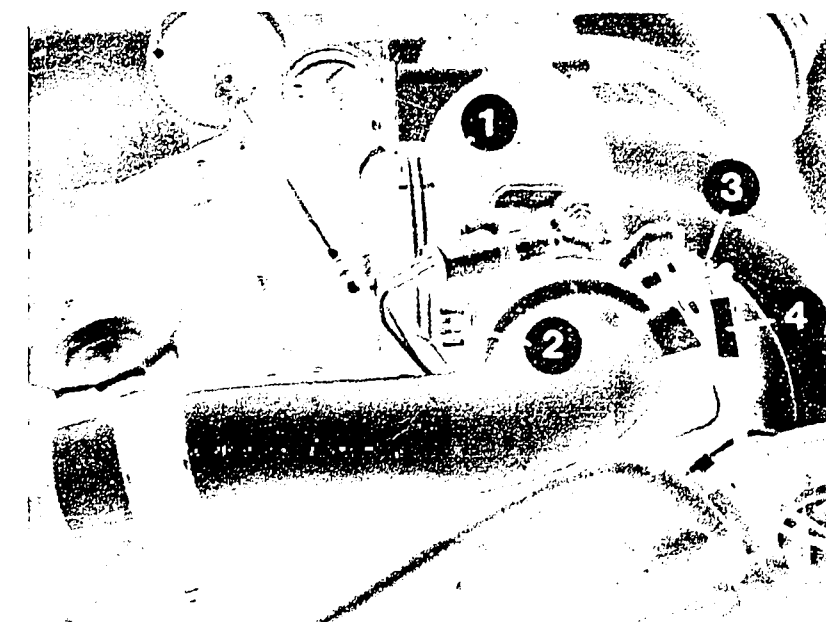
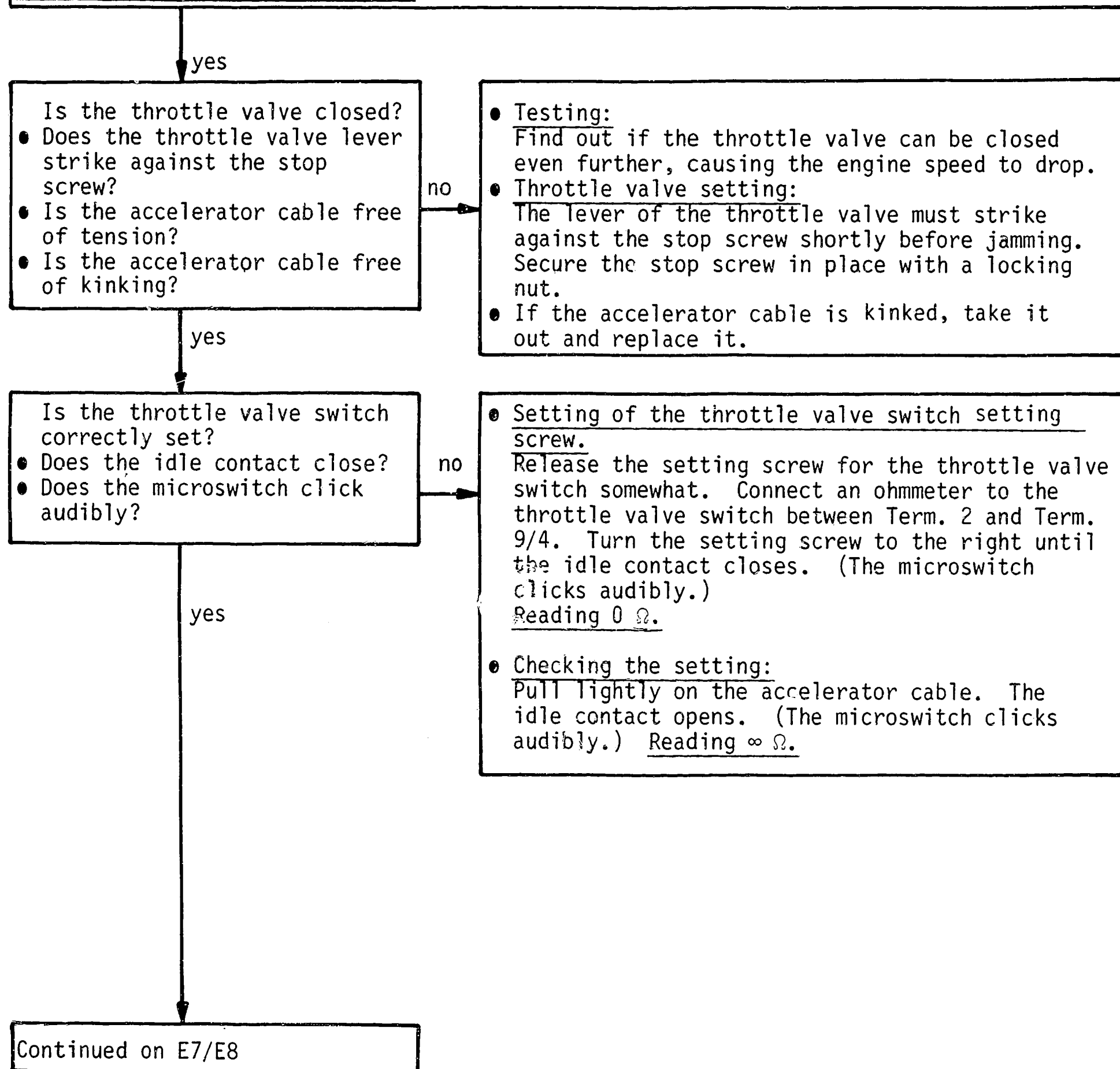
Rough idle
Peugeot 505 Turbo

**E4**

Rough idle
Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)



- 1 = Throttle valve lever
- 2 = Throttle valve stop screw
- 3 = Throttle valve switch setting screw
- 4 = Throttle valve switch

E5

Rough idle
Peugeot 505 Turbo



E6

Rough idle
Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

Is the thermotime switch O.K.?

no

Electrical test

Check the thermotime switch as follows:
Disconnect the plug and take measurements directly on the thermotime switch with an ohm-meter:

- Between Term. "G" and ground
Ambient temperature (less than +30°C):

25 ... 40 Ω

With engine at normal operating temperature
(above +40°C):

50 ... 80 Ω

- Between Term. "W" and ground
Ambient temperature (less than +30°C):

0 Ω

With engine at normal operating temperature
(above +40°C):

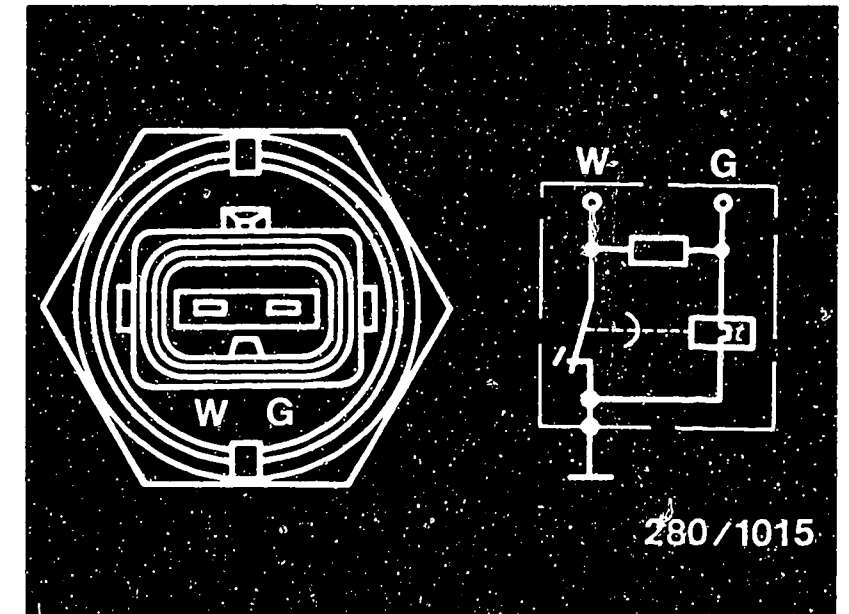
100 ... 160 Ω

- Between Term. "G" and "W"
Ambient temperature (less than +30°C):

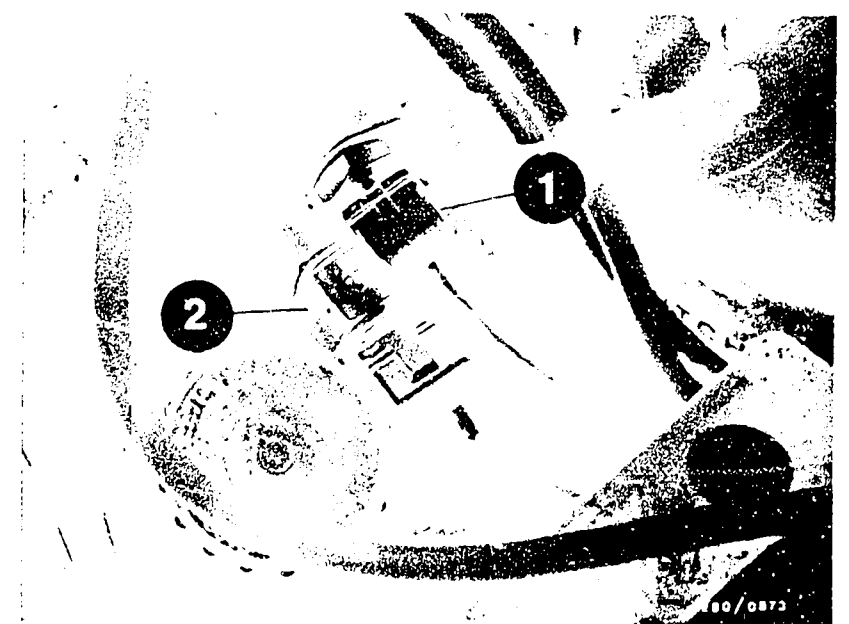
25 ... 40 Ω

With engine at normal operating temperature
(above +40°C):

50 ... 80 Ω



1 = Temperature sensor II
2 = Thermotime switch



Continued on E9/E10

E7

Rough idle
Peugeot 505 Turbo



E8

Rough idle
Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

yes

Is the electric starting valve O.K. with regard to leaks?

- Max. allowable 1 drop/min.

no

Checking the electric starting valve for leaks:

• Taken out

Take the electric starting valve out. (Caution: Fire hazard!) The fuel and electrical lines remain connected. (Place a collector basin under the electric starting valve.) Build up the fuel pressure. Pull the control relay from the socket and jump Term. 30 and Term. 87 with a jumper cable.

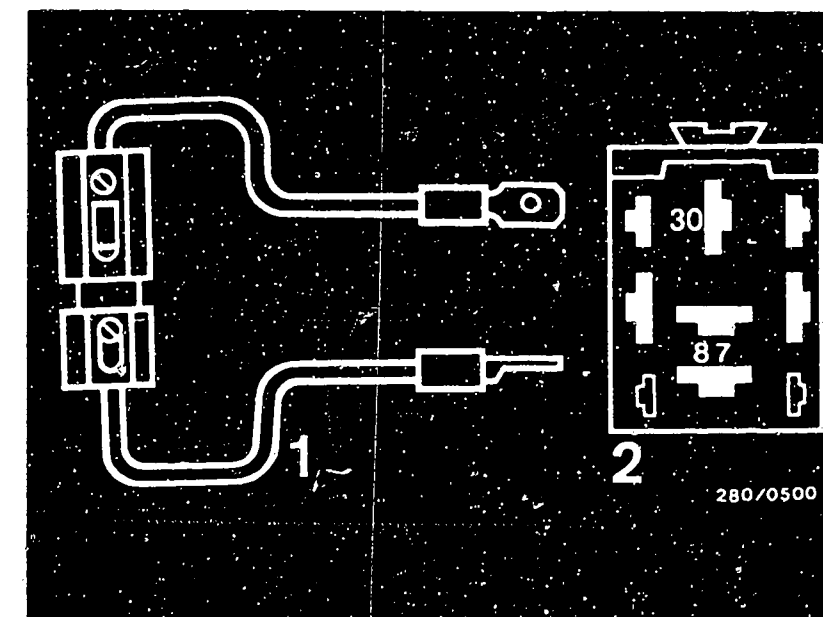
Test specification: A max. of 1 drop is permissible at the opening of the valve within one minute.

Caution!

It is absolutely necessary to remove the jumper after completion of the test and to plug the control relay back on.

yes

Continued on E11/E12

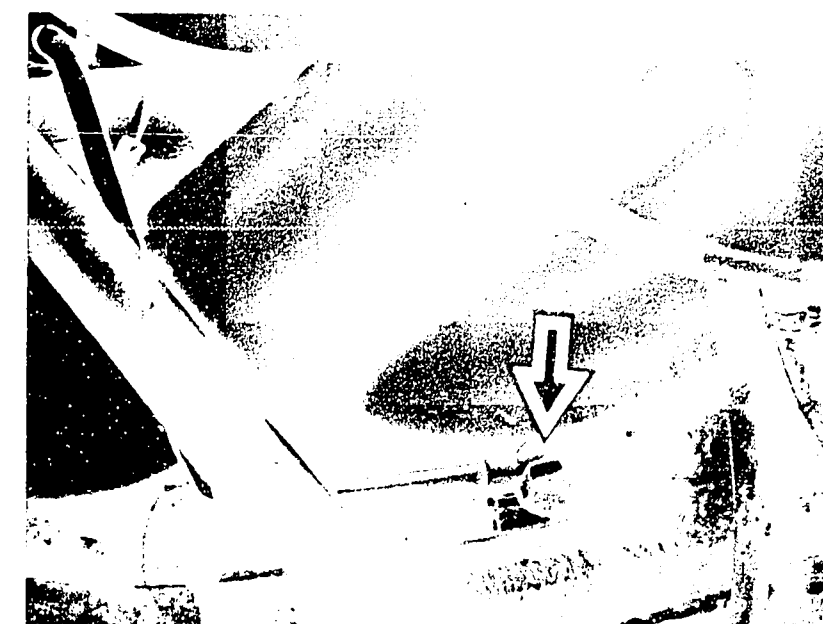


Jumper (user-fabricated)

1 = Fuse holder with 10 A fuse

2 = Top view of connecting socket

Arrow = Electric starting valve



E9

Rough idle

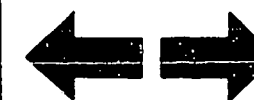
Peugeot 505 Turbo



E10

Rough idle

Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

yes

Is the auxiliary-air device O.K. mechanically? (not used in the US model)
Open passage:
● cold → open?
● warm → closed?
● Does the engine speed drop when the hose is clamped off? (cold engine).

no

Testing:

- Visual inspection of the auxiliary-air device. Disconnect the hoses and look through. (If necessary, use a small mirror to do so.) When cold, the cross-section must be partially open, when warm it must be closed. If not, take out and replace the auxiliary-air device.
- Functional test of the auxiliary-air device: With the engine cold, clamp off the hose to the auxiliary-air device. The engine speed must drop off. With the engine warm, clamp off the hose to the auxiliary-air device. The engine speed must not drop off noticeably. Otherwise, take out and replace the auxiliary-air device. (Watch the direction of through flow.)

yes

Is the electrical operation of the auxiliary-air device (voltage supply, ground lead, resistance value) O.K.?

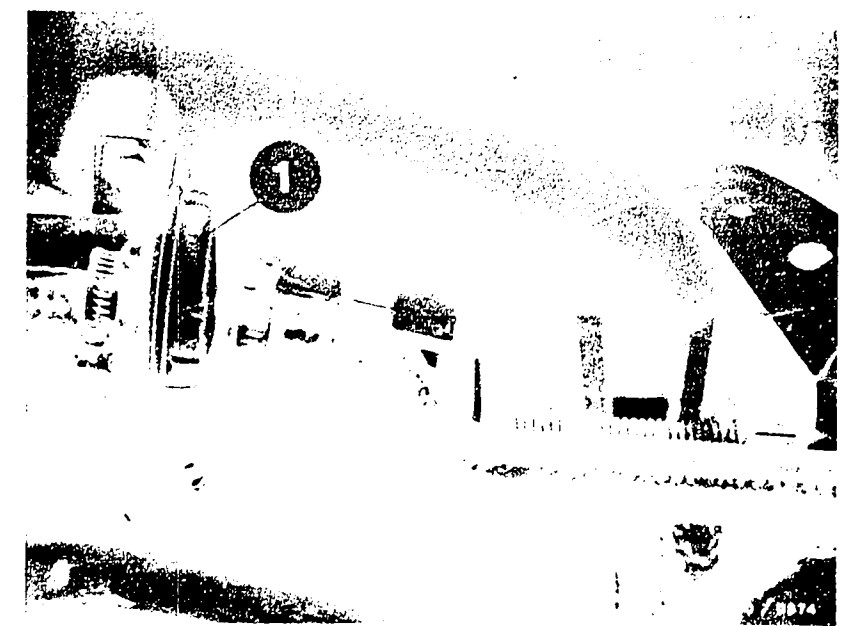
no

Start the engine.

- Voltage at the lead plug min. 12 V. If not, check the following leads for continuity (specified value approx. 0 Ω).
- From Term. 26 to the ground terminal
- From Term. 72 to the control relay Term. 87b
- Resistance of the auxiliary-air device 20...55 Ω (lead plug disconnected). If the resistance is not within tolerance, take out and replace the auxiliary-air device.

yes

Continued on E 13/E 14



1 = Auxiliary-air device

E11

Rough idle
Peugeot 505 Turbo



E12

Rough idle
Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

yes

Has the operation of the electric fuel-injection valves been checked?

- Fuel-injection pulses without interference or missing?
- Have the leads been laid properly?
- Are the plug connections free of loose contacts?

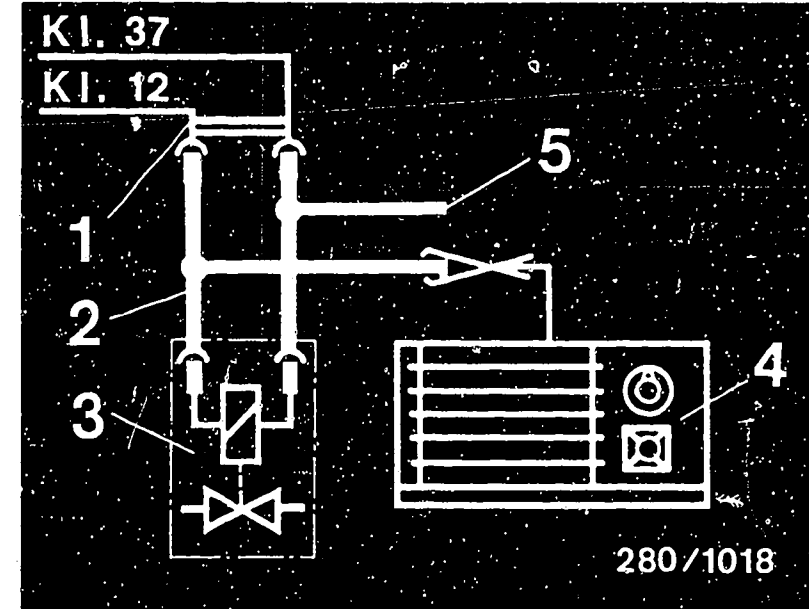
no

- Connect the test lead as follows:
The 2-pole plug connections on the test lead are put in between one electric fuel-injection valve and its connecting lead. Of the other two connecting terminals on the test lead, only one connecting terminal needs to be connected to the special input on the motortester.

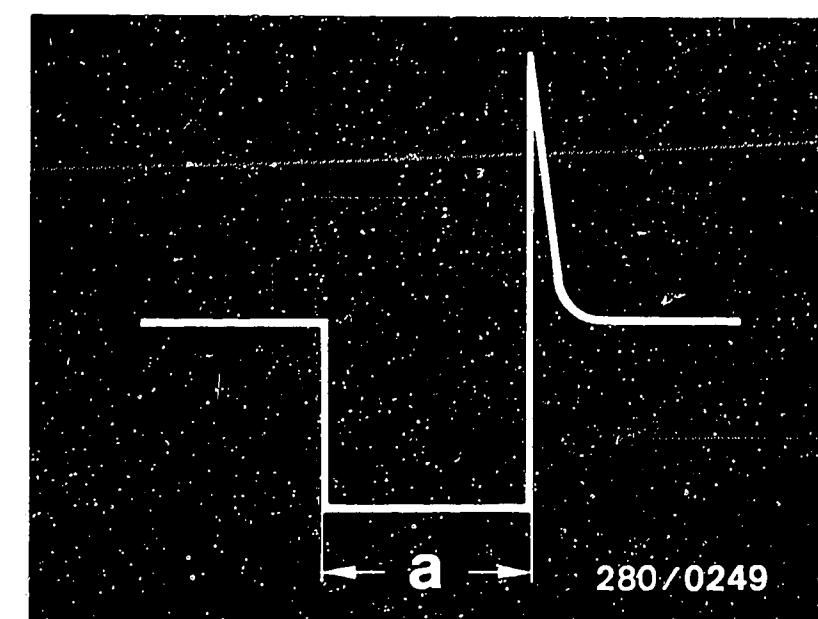
- Caution!
The free connection terminal must not make contact with the vehicle ground!
- If connected correctly, the pattern shown at the right appears on the oscilloscope.
With the aid of the test lead, the fuel-injection pulses can be tested on the electric fuel-injection valves with an ignition oscilloscope while the engine is running.
If the pattern shown at the right is not obtained or if deviations can be seen (interference, missing, etc.), the other electric fuel-injection valves should also be examined.
- For interference: Check how the leads have been laid.
- For missing: Eliminate loose contacts in the leads or in the plug connections.

yes

Continued on E15/E16



K1. = Term.
1 = Connection plug for the valve lead
2 = Test lead 1 684 463 093
3 = Electric fuel-injection valve
4 = Motortester
5 = Free connection (do not ground)
Fuel-injection pulses of a switched output stage (measured on the electric fuel-injection valve)
a = Pulse length (dependent on engine load).



E13

Rough idle
Peugeot 505 Turbo



E14

Rough idle
Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

yes

Are the electric fuel-injection valves O.K. mechanically?

- Does the engine speed drop off if the fuel-injection valve connectors are disconnected one by one?
- Are the O-rings O.K.?
- Repair electric fuel-injection valves.

no

With the engine running, disconnect the electric fuel-injection valve connectors from the electric fuel-injection valves individually, one after the other, and plug them back on. If an electric fuel-injection valve is good, the engine speed must drop off.

Caution!

When replacing an electric fuel-injection valve, the valve installed must be electric fuel-injection valve 0 280 150 255. If the electric fuel-injection valves are operating properly but the O-rings are defective, proceed as follows:

• Instructions for repair

Take out the fuel distribution pipe. Disconnect the electrical connection. Carefully shove the retaining brackets out of the slot and pull the electric fuel-injection valve out of the fuel distributor pipe.

Caution!

Catch any fuel that escapes. Do not allow it to drip on to hot portions of the engine.

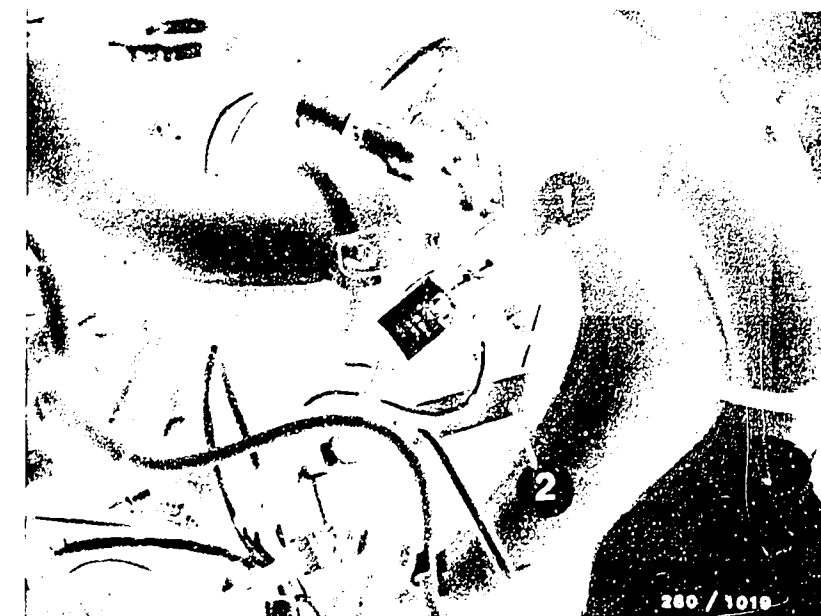
Caution!

It is not permissible to pry off the protection sleeve.

yes

Continued on E19/E20

Continued on E17/E18



1 = Electric fuel-injection valve (concealed below the intake tube)

2 = Fuel distribution pipe

1 = FD marking

2 = Top O-ring

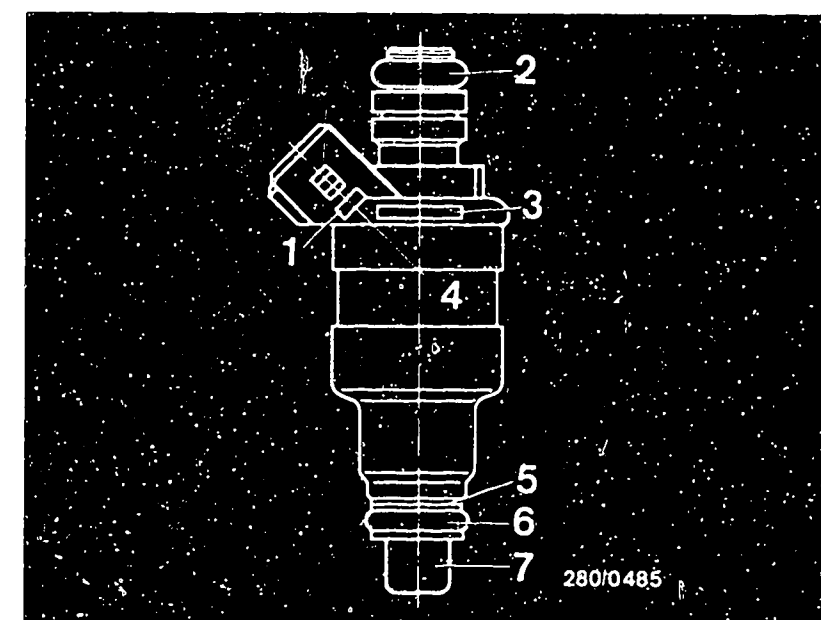
3 = Part number

4 = Electric fuel-injection valve

5 = Supporting plate

6 = Bottom O-ring

7 = Protection sleeve



E15

Rough idle

Peugeot 505 Turbo



E16

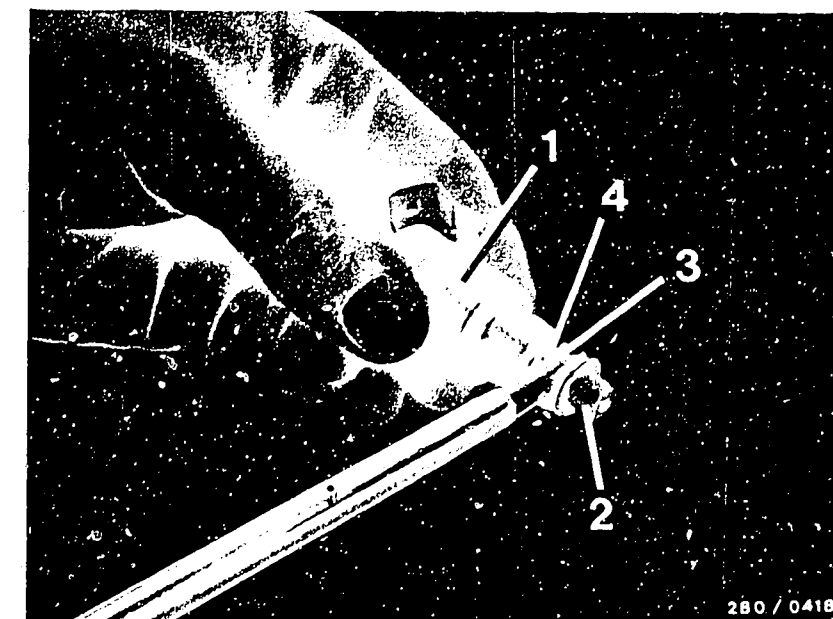
Rough idle

Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

Cut the bottom O-ring (intake tube) to pieces. Be careful! Do not damage the protection sleeve. Pull a new O-ring over the protection sleeve and its shoulder. In so doing, do not damage any parts.
Use parts kit 1 287 010 704.
When working on the electric fuel-injection valves, do not damage the valve needle. (If the top O-ring (fuel distribution pipe connection) is swollen or damaged, it also must be taken out and replaced.



- 1 = Electric fuel-injection valve
- 2 = Protection sleeve
- 3 = Bottom O-ring
- 4 = Supporting plate

yes

Continued on E19/E20

E17

Rough idle
Peugeot 505 Turbo



E18

Rough idle
Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does the air-flow sensor flap move freely?
- Does the air-flow sensor flap return to its at rest position?
- Are the resistance values with tolerance?
Between Term. 8 and Term. 9:
160 ... 300 Ω
Between Term. 7 and Term. 5
(deflect the air-flow sensor flap):
60 ... 1000 Ω

no

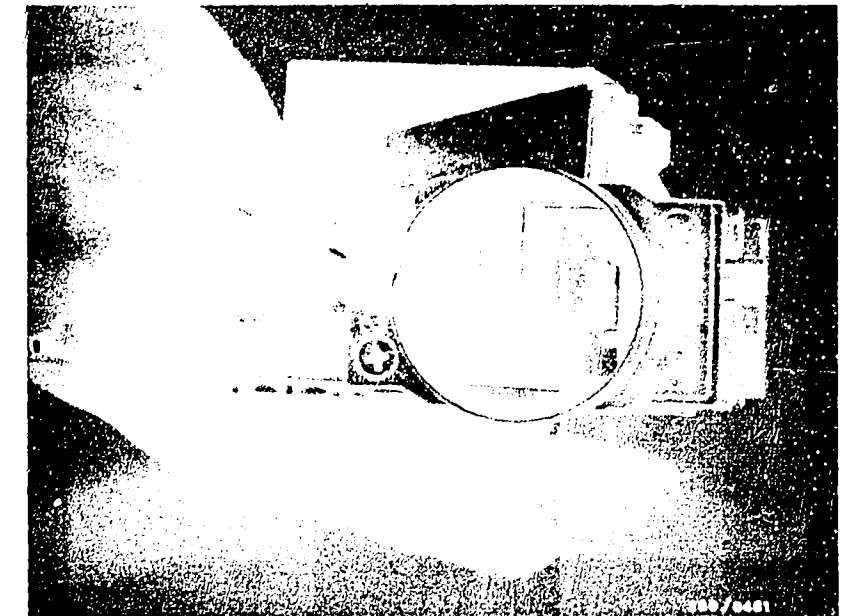
Testing:

- Unscrew the air-flow sensor from the air filter housing.
Open the air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must return on its own to the stop. The air-flow sensor flap must not stick when being opened. Watch for friction markings. If the inside of the air-flow sensor is very dirty, clean it, and rub it out with a lint-free rag. If there are friction markings, the air-flow sensor must be taken out and replaced.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent out of shape. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specification: 160 ... 300 Ω
Connect the ohmmeter to Term. 7 and Term. 5 of the air-flow sensor.
Deflect the air-flow sensor flap all the way.
Test specification: 60 ... 1000 Ω

Caution! After completion of the test, the air-flow sensor must be screwed back onto the air filter housing.

yes

Continued on E21/E22



Pressing on the sensor flap in the air-flow sensor.

E19

Rough idle
Peugeot 505 Turbo



E20

Rough idle
Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

yes

Are all hoses correctly put on, without kinking or damage? Visual inspection.

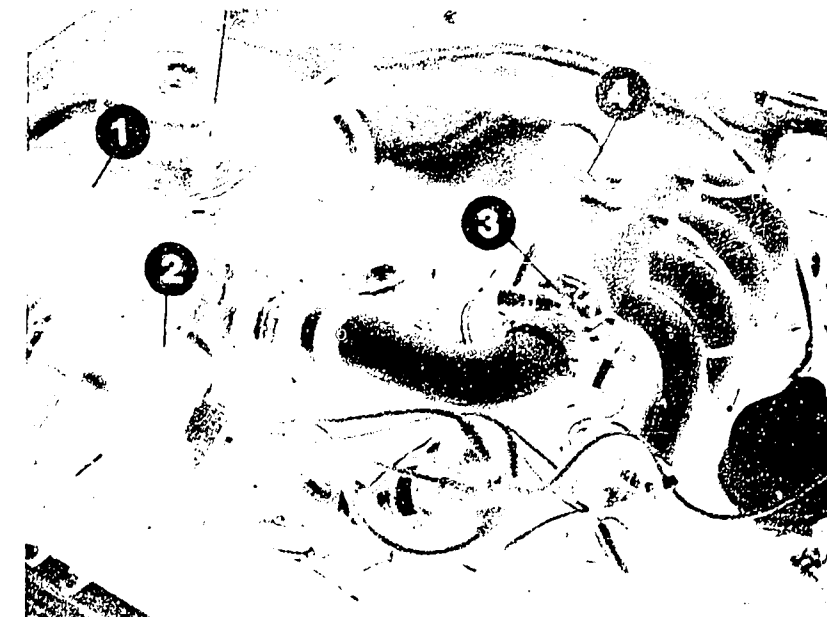
- Has the air intake system been tested for leaks with 0.3 bar gauge pressure?

no

- Check that all the hoses on the air intake system and the fuel line system are put on correctly without kinking or damage. If need be, take out and replace hoses. Eliminate leaks by using new seals or by tightening the connecting screws.
- Testing for leaks:
Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Take off the hose after the auxiliary-air device and, using a compressed air gun, blow air (0.3 bar gauge pressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve all the way. Brush or spray all seal locations with soapy water. Leaks can also occur at the following points on the engine: The oil dipstick is not inserted firmly, defective cover seal for the oil filler neck, etc. Bubbling or foaming indicates leaks.

yes

Continued on E23/E24



- 1 = Intake manifold
- 2 = Air-flow sensor
- 3 = Throttle-valve assembly
- 4 = Auxiliary-air device

E21

Rough idle
Peugeot 505 Turbo



E22

Rough idle
Peugeot 505 Turbo



Rough idle, incorrect idle speed (continued)

yes

Has the idle speed been adjusted correctly?

no

- Idle speed adjustment
The idle speed is adjusted on the adjusting screw on the throttle valve assembly.

- Idle speed: 850 ... 950 min⁻¹

yes

The trouble-shooting program for the customer complaint

"Rough idle, incorrect idle speed,"

has been completed.

Is the defect corrected?

no

Other possible defects:

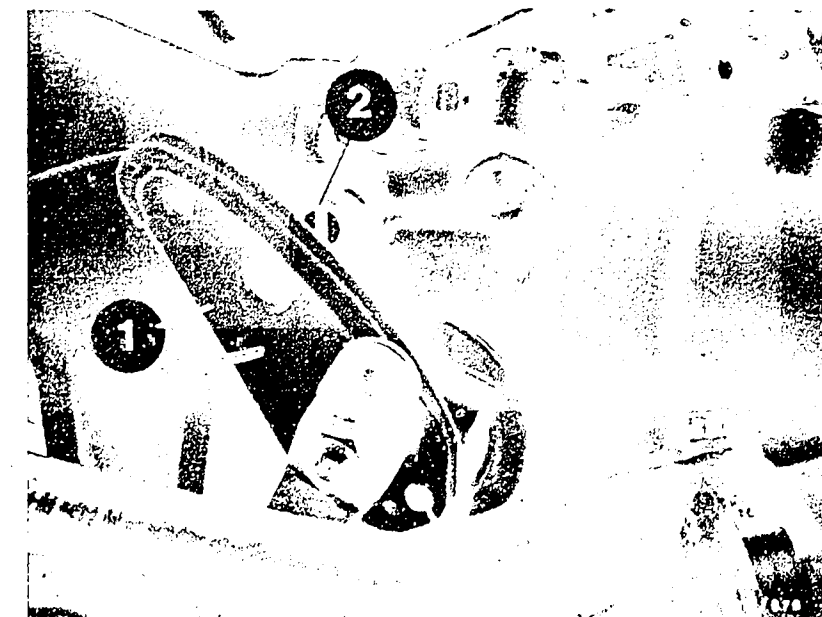
- Customer complaint incorrectly identified (see Coordinates B3...B8).
If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart". (Coordinates B3/B4).
- Engine not O.K. mechanically (compression, valve setting, engine timing, wear on camshaft).

yes

- Is the lambda closed-loop control O.K.?

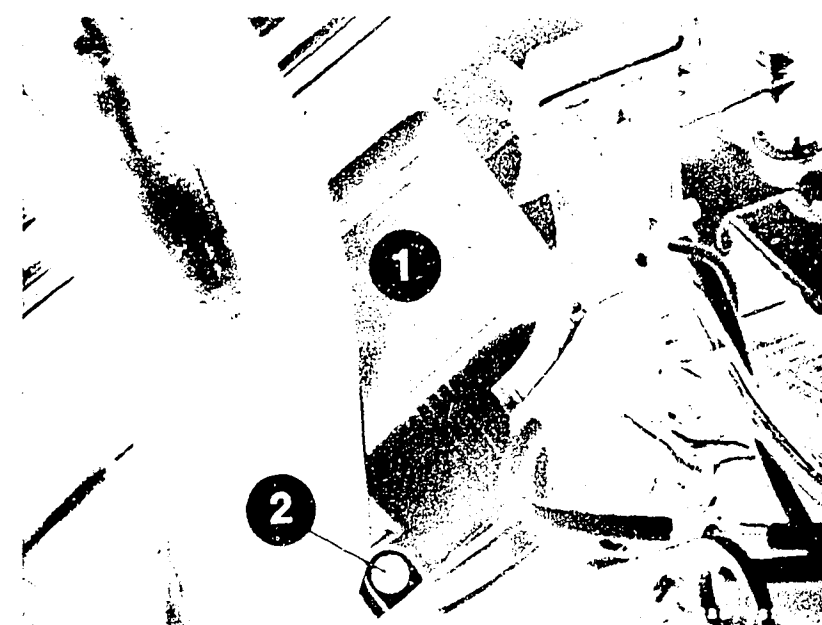
no

Check the lambda closed-loop control (Coordinates F1...F10).



1 = Throttle valve lever
2 = Idle-speed-adjusting screw

1 = Air-flow sensor
2 = CO-adjusting screw



E23

Rough idle
Peugeot 505 Turbo



E24

Rough idle
Peugeot 505 Turbo



LAMBDA CLOSED-LOOP CONTROL

Checking and adjusting the CO-level in the exhaust gas by changing the integrator voltage in vehicles with lambda closed-loop controls

Preparations for testing

- Engine must be at normal operating temperature.
- Before testing, the engine must be run for approx. 30 s at an engine speed of 3000 min^{-1} . The lambda sensor must be warmed up properly.
- If the testing has not been completed after 5 min., the sensor must be rewarmed (3000 min^{-1} for approx. 30 s).
- Connect the lambda closed-loop control tester KDJE-P 600 with the testing clip (4) to the white measuring lead, No. 22 (on the right at the air filter). (If need be, fabricate an intermediate adapter.)
- Set the lambda closed-loop control tester to the scale 12 V.
- Connect the lambda closed-loop control tester to positive (red clip) and negative (black clip) on the battery. The green LED must light up!

Prerequisites for checking the lambda closed-loop control are:

- The universal test adapter testing program for the Jetronic has been run,
- The fuel pressure test has been run,
- The engine is at normal operating temperature,
- The lead from the activated carbon filter (if there is one) has been disconnected,
- The engine is running.
- Is the lambda sensor heater O.K.? Internal resistance (PTC) $1.0 \dots 10.0 \Omega$.
Voltage supply approx. 12 V vehicle voltage.

Idle speed:

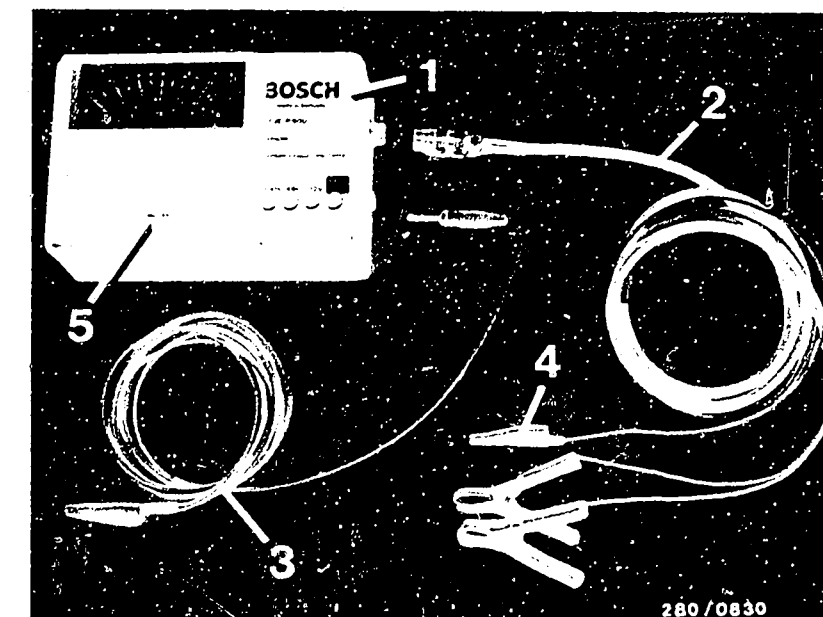
The idle speed must be adjusted correctly.

Test specification: $850 \dots 950 \text{ min}^{-1}$

CO-adjustment (integrator voltage):

The CO-level in the exhaust gas is adjusted indirectly via the integrator voltage for the lambda closed-loop control.

When making adjustment on the bypass screw on the air-flow sensor, the anti-tamper device must be drilled out. (Use suitable commercially-available tools.) After the test, it is absolutely necessary to put in a new seal (Part No. 1 283 123 004). The adjustment must be made in small steps (socket hex screw AF 5), and after that, the reading for voltage must be checked in each case.



- 1 = Lambda closed-loop control tester KDJE-P 600
- 2 = Connecting lead KDJE-P 600/51
- 3 = Lead KDJE-P 600/1
- 4 = Testing clip on the white measuring lead No. 22
- 5 = Indicator for voltage supply

F1

Lambda closed-loop control
Peugeot 505 Turbo



F2

Lambda closed-loop control
Peugeot 505 Turbo



Lambda closed-loop control

Adjustment of the idle integrator voltage

Watch the reading of the lambda closed-loop tester (Idle). The reading must fluctuate back and forth between two values? (Closed-loop control)

Is it operating properly?

no

Has the sensor been correctly preheated?

Run the engine at 3000 min^{-1} for 30 s. Idle, the value for voltage now fluctuates back and forth.

- If not, switch ignition "OFF". Is the sensor lead incorrectly plugged in at the connection, are there contact resistances? Check, and if need be repair. Does the voltage value at idle now fluctuate back and forth? If not, switch ignition "OFF", and take apart the sensor connection. Check the following leads for continuity.

- From the control unit plug Term. 20 to the ground terminal for the electronics system. Specified value $\infty \Omega$.

- Ground lead from the control unit Term. 20 to the connection.

Specified value approx. 0Ω .

If there is a defect, take out and replace the lead.

N.B.! The sensor lead must be shielded.

It is not permissible to check the lambda sensor directly using a multimeter. The test current can destroy the lambda sensor! Rejoin the sensor connection. Run the engine (3000 min^{-1} , 30 s). Does the voltage value at idle now fluctuate back and forth?

If not, switch the ignition "OFF". Check the following leads for continuity:

- From the control unit plug Term. 22 to the white test connection Term. 22. Specified value approx. 0Ω .

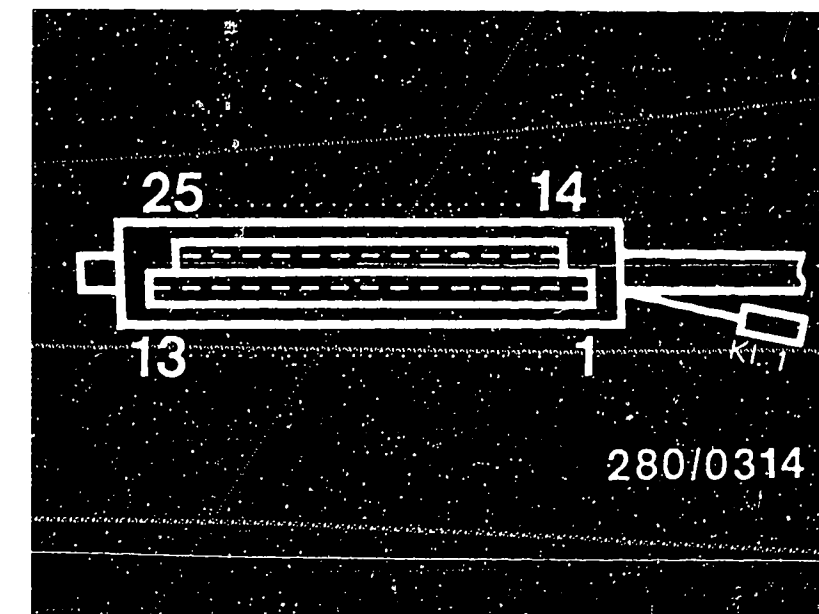
If there is a defect, take out and replace the lead.

Does the voltage reading at idle now fluctuate back and forth? If not,

- lambda sensor is defective. When putting in a new sensor, use the grease Vs 140 16 Ft.
- The LU control unit is defective.

yes

Continued on F5/F6



Top view of control unit plug

Installation position of the components

- Lambda sensor:

In the exhaust pipe, in front of the right bulkhead.

F3

Lambda closed-loop control

Peugeot 505 Turbo



F4

Lambda closed-loop control

Peugeot 505 Turbo



Lambda closed-loop control

yes
Take an average of the two extreme values for voltage (closed-loop control V_R)
Has average value been noted down?

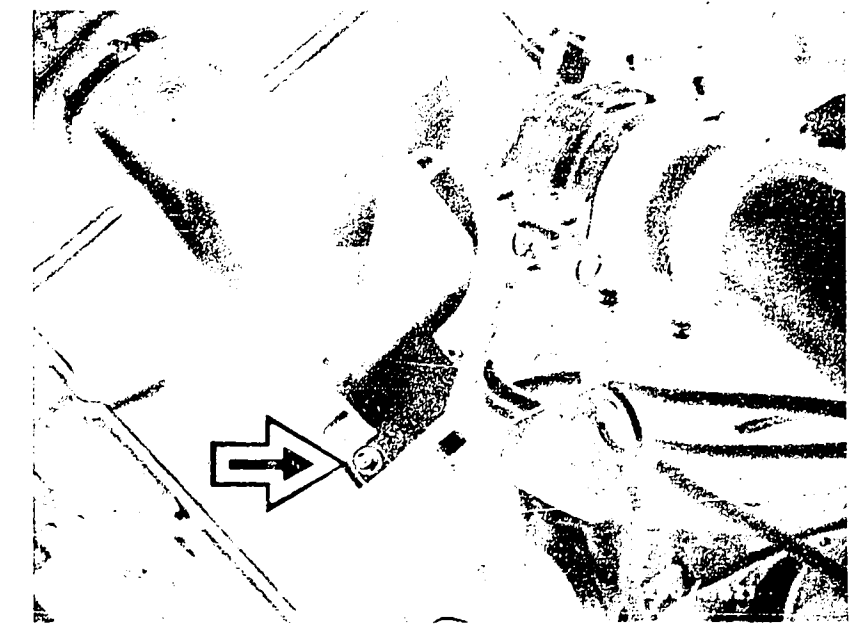
yes
Take apart the sensor connection. Read the voltage and note it down. (Open-loop control V_S .)
Are the two values for voltage equal? ($V_S = V_R$)

yes
Adjustment of the idle integrator voltage completed.

yes
The sensor lead must be plugged back in.

Continued on F7/F8

no
Does the intake system, including the hose to the pressure regulator, leak? If necessary, eliminate any defect. Does the exhaust system leak? If need be, repair. Are no errors found? Adjust the integrator voltage and with that the CO-level in the exhaust gas via the adjusting screw on the air-flow sensor (with the sensor plugged in). Note down the average value for voltage. (Closed-loop control V_R). Take apart the sensor connection. (Disconnect the sensor.) Read value for voltage. (Open-loop control V_S .) The two values must be equal! If need be, repeat the adjustment until the two voltage readings are equal. Adjust the integrator voltage only in closed-loop control operation. (Sensor plugged in)
If it cannot be adjusted, and the tests above have been carried out conscientiously, take out and replace the air-flow sensor. If it is still impossible to adjust the integrator voltage, take out and replace the LU control unit.



Arrow = Adjusting screw for the integrator voltage

F5

Lambda closed-loop control
Peugeot 505 Turbo



F6

Peugeot 505 Turbo



Lambda closed-loop control (continued)

yes

Checking the rich value
Run engine at idle. Engine at normal operating temperature. Disconnect the sensor connection and ground the sensor lead (coming from the control unit). Does the reading for voltage increase to 9...11 V (rich)?

no

Test the ground connection for the sensor lead. Eliminate any contact resistance that may be present. If there is still a defect, take out and replace the LU control unit.

yes

Checking the lean value.
Run engine at idle. Engine at normal operating temperature. Connect the sensor lead (coming from the control unit) to the 2 V outlet on the lambda closed-loop control tester KDJE-P 600. (Lead KDJE-P 660/1) Does the reading for voltage drop to approx. 0.5 V (lean)?

no

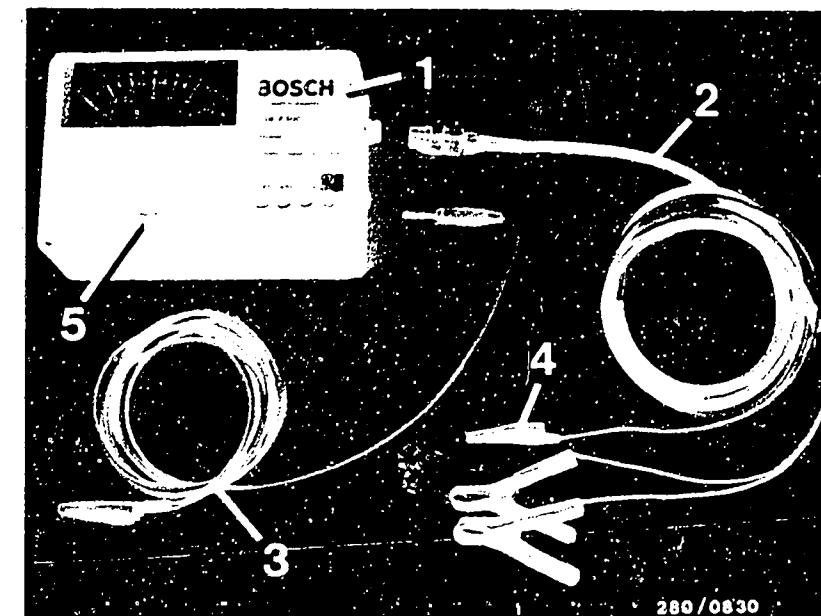
Check the 2 V voltage on the lambda closed-loop control tester. If voltage is present, take out and replace the LU control unit. If there is no voltage present, the lambda closed-loop control tester is defective.

yes

Sensor lead must be plugged back in.

yes

Continued on F9/F10



- 1 = Lambda closed-loop control tester KDJE-P 600
- 2 = Connecting lead KDJE-P 600/51
- 3 = Lead KDJE-P 600/1
- 4 = Test clip to white test lead No. 22

F7

Lambda closed-loop control
Peugeot 505 Turbo



F8

Lambda closed-loop control
Peugeot 505 Turbo



Lambda closed-loop control (continued)

yes

Checking the overrun cutoff function.

Run the engine at between 3000 min⁻¹ and 4000 min⁻¹ (at no load: the air conditioner must be switched off).

Take reading for voltage on the lambda closed-loop control tester.

Closed-loop control operation

Suddenly release the accelerator pedal.

Take reading for voltage.

Open-loop control operation

At a reinstatement speed of approx. 950 min⁻¹

Closed-loop control operation

Is it operating properly?

no

Sensor not hot enough. Run the engine at 3000 min⁻¹ for approx. 30 s. Repeat the test. Is it functioning properly?

If not, the sensor connection is not properly plugged in.

Eliminate the defect.

Is it functioning properly?

If not, take out and replace the LU control unit.

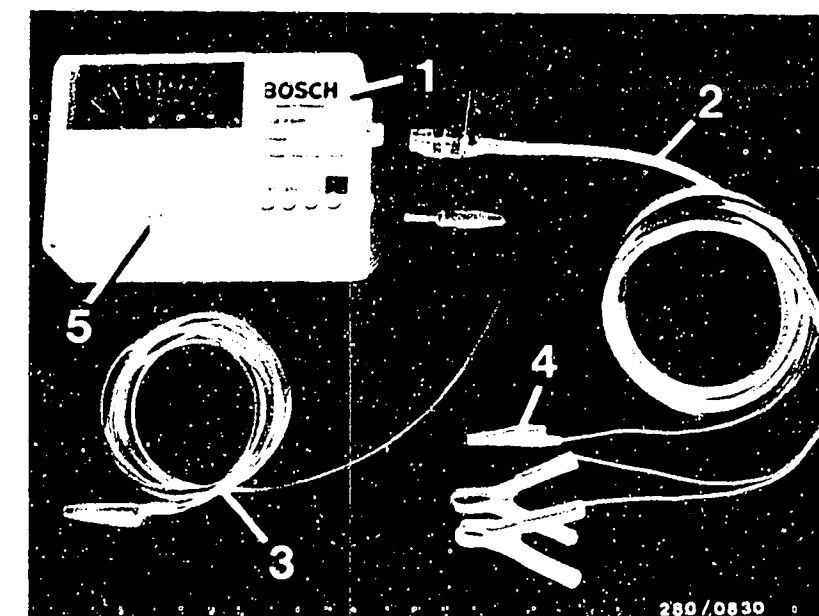
yes

Remove the lambda closed-loop control tester KDJE-P 600 and all its connecting leads from the engine compartment. Restore all cable connections. Restore the original installation conditions. After making an adjustment, put in a new anti-tamper device (seal) on the air-flow sensor (Part No. 1 283 123 004).

Testing of the lambda closed-loop control with lambda closed-loop control tester KDJE-P 600 has been completed.

Additional possible defects:

- Customer complaint incorrectly identified (see Coordinates B3...B8).
If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart", (Coordinates B3/B4).
- Engine not O.K. mechanically (compression, valve setting, engine timing, wear on camshaft).



- 1 = Lambda closed-loop control tester KDJE-P 600
- 2 = Connecting lead KDJE-P 600/51
- 3 = Lead KDJE-P 600/1
- 4 = Test clip to white test lead No. 22

F9

Lambda closed-loop control
Peugeot 505 Turbo



F10

Lambda closed-loop control
Peugeot 505 Turbo



POOR THROTTLE TAKE-UP

Trouble-shooting program according to customer complaint

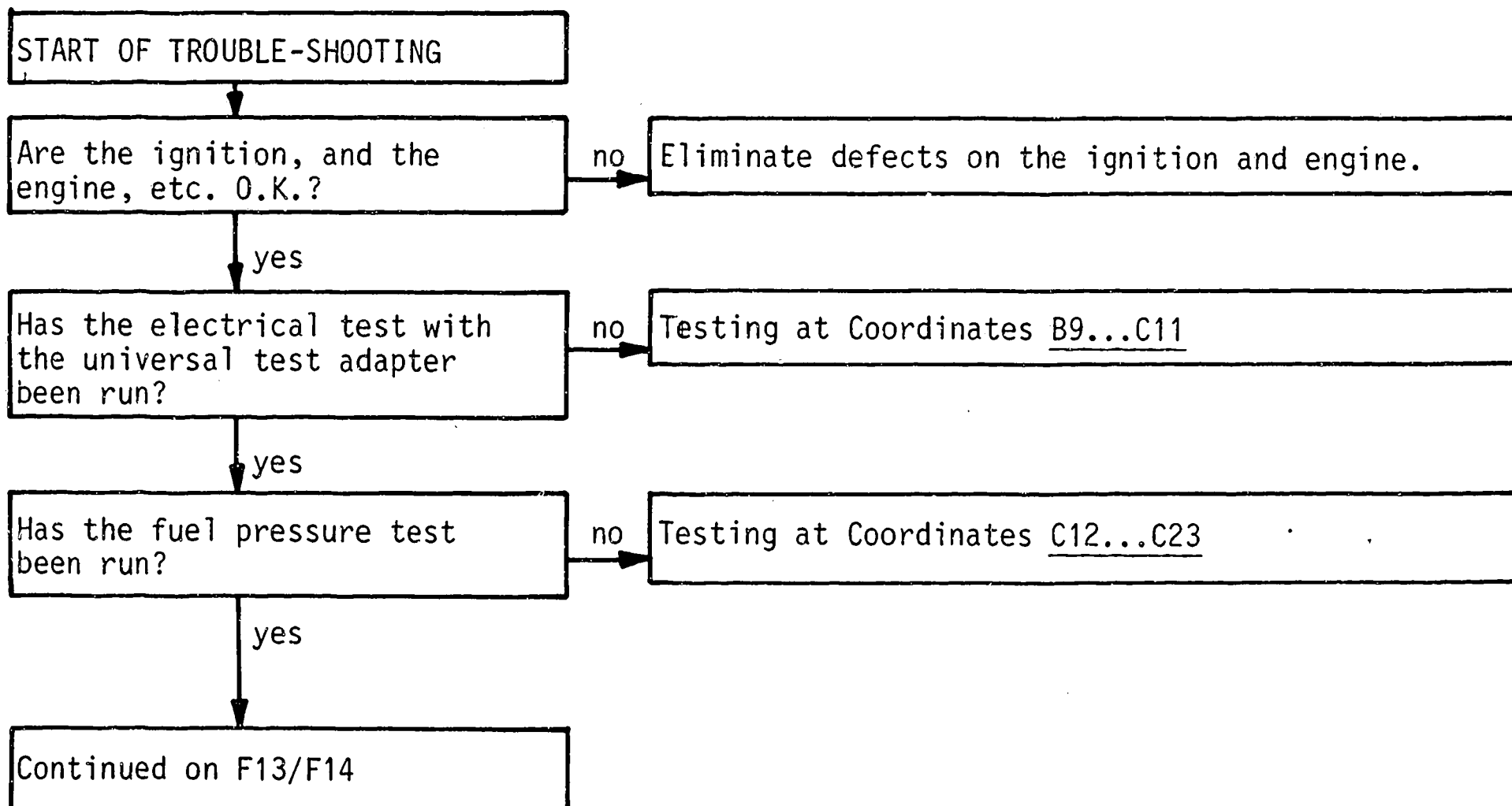
How to use the program

The testing is organized in three columns of boxes:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the tests and settings on components.
- The column at the right contains the figures that go with the text and the legend for the items in the figures.

If it is possible to answer the questions unambiguously with "yes" even without a test, proceed to the question next below.

On the other hand, if the answer is "no", and a defect is suspected, you must shift to the column of boxes in the middle and carry out the tests indicated there. After completion of the testing, the trouble-shooting is continued at that point at which that shift was made.

**F11**

Poor throttle take-up
Peugeot 505 Turbo

**F12**

Poor throttle take-up
Peugeot 505 Turbo



Poor throttle take-up (continued)

yes

- Is the throttle valve closed?
- Does the throttle valve lever strike against the stop screw?
- Is the accelerator cable free of tension?
- Is the accelerator cable free of kinking?

no

- Testing:
Find out if the throttle valve can be closed even further, causing the engine speed to drop.
- Throttle valve setting:
The lever of the throttle valve must strike against the stop screw shortly before jamming. Secure the stop screw in place with a locking nut.
- If the accelerator cable is kinked, take it out and replace it.

yes

- Is the throttle valve switch correctly set?
- Does the idle contact close?
- Does the microswitch click audibly?

no

- Setting of the throttle valve switch adjusting screw.
Release the setting screw for the throttle valve switch somewhat. Connect an ohmmeter to the throttle valve switch between Term. 2 and Term. 9/4. Turn the setting screw to the right until the idle contact closes. (The microswitch clicks audibly.) Reading 0 Ω .
- Checking the setting:
Pull lightly on the accelerator cable. The idle contact opens. (The microswitch clicks audibly.) Reading $\infty \Omega$.

yes

Continued on F15/F16



- 1 = Throttle valve lever
- 2 = Throttle valve stop screw
- 3 = Throttle valve switch adjusting screw
- 4 = Throttle valve switch

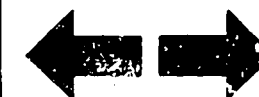
F13

Poor throttle take-up
Peugeot 505 Turbo



F14

Poor throttle take-up
Peugeot 505 Turbo



Poor throttle take-up (continued)

yes

Is the auxiliary-air device
O.K. mechanically?

Open cross-section:

- Cold → open?
- Warm → closed?
- Drop in engine speed when the hose is crimped off? (Cold engine.)

no

Testing:

- Visual checking of the auxiliary-air device:
Disconnect the hoses and look through it.
(To do so, use a small mirror if necessary.)
When cold, the cross-section must be partially open. When the engine is warm, it must be closed. If not, take out and replace the auxiliary-air device.
- Functional test of the auxiliary-air device:
With the engine cold, crimp off the hose to the auxiliary-air device. The engine speed must drop off. With the engine warm, crimp off the hose to the auxiliary-air device. It is permissible for the engine speed to drop off only unnoticeably. Otherwise, take out and replace the auxiliary-air device. (Be careful of the direction of the through flow.)

yes

Is the electrical operation of
the auxiliary-air device
(voltage supply, ground lead,
resistance) O.K.?

no

Start the engine.

- Voltage at the lead plug min. 12 V. If not, check the following leads for continuity (specified value approx. 0 Ω):
- From Term. 26 to the ground terminal.
- From Term. 72 to the control relay Term. 87b.
- Resistance of the auxiliary-air device 20...50 Ω (lead plug disconnected).
If the resistance is not within tolerance, take out and replace the auxiliary-air device.

yes

Continued on F17/F18



1 = Auxiliary-air device

F15

Poor throttle take-up
Peugeot 505 Turbo



F16

Poor throttle take-up
Peugeot 505 Turbo



Poor throttle take-up (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does the air-flow sensor flap move freely?
- Does the air-flow sensor flap return to its at rest position?
- Are the resistance values with tolerance?
Between Term. 8 and Term. 9:
160 ... 300 Ω
Between Term. 7 and Term. 5
(deflect the air-flow sensor flap):
60 ... 1000 Ω

no

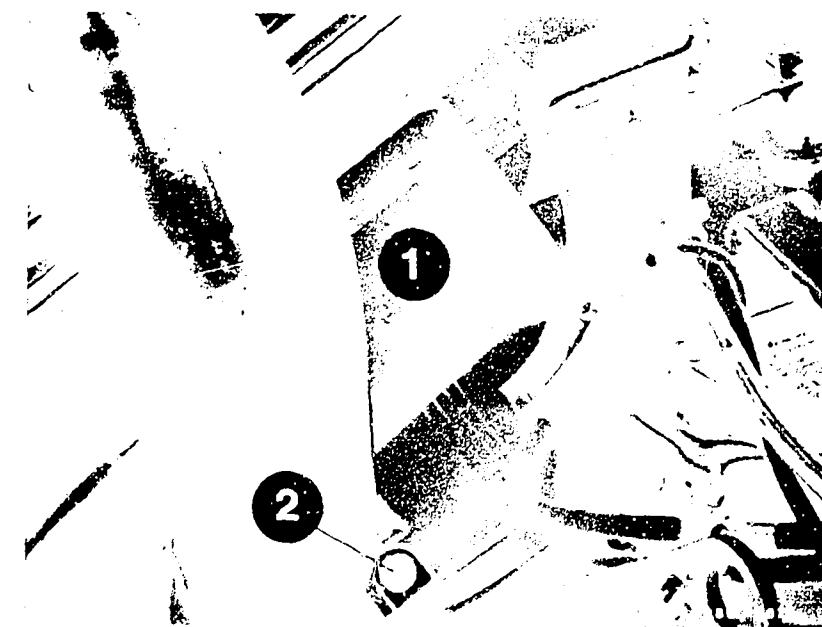
Testing:

- Unscrew the air-flow sensor from the air filter housing.
Open the air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must return on its own to the stop. The air flow sensor flap must not stick when being opened. Watch for friction markings. If the inside of the air-flow sensor is very dirty, clean it, and rub it out with a lint-free rag. If there are friction markings, the air-flow sensor must be taken out and replaced.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent out of shape. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specification: 160 ... 300 Ω
Connect the ohmmeter to Term. 7 and Term. 5 of the air-flow sensor.
Deflect the air-flow sensor flap all the way.
Test specification: 60 ... 1000 Ω

Caution! After completion of the test, the air-flow sensor must be screwed back onto the air filter housing.

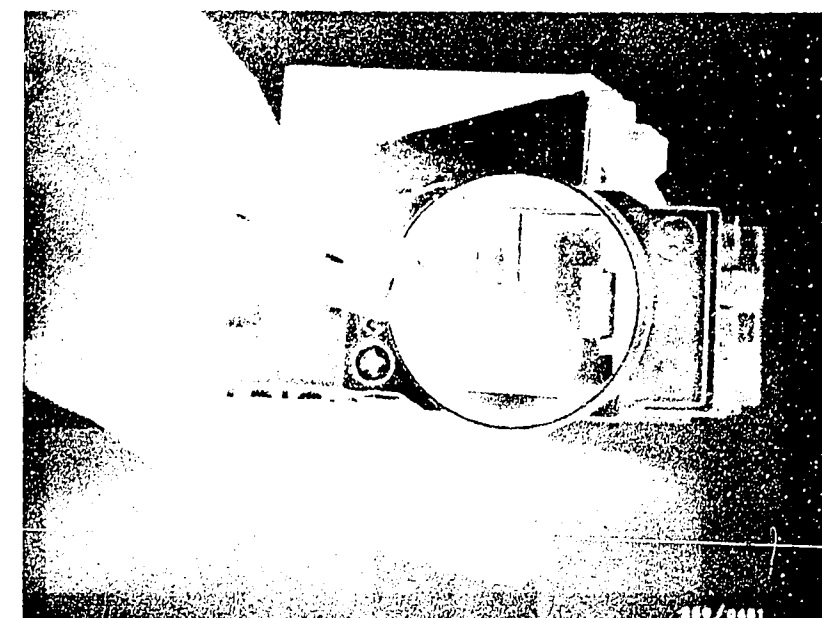
yes

Continued on F19/F20



1 = Air-flow sensor
2 = CO-adjusting screw

Pressing on the sensor flap in the air-flow sensor.



F17

Poor throttle take-up
Peugeot 505 Turbo



F18

Poor throttle take-up
Peugeot 505 Turbo



Poor throttle take-up (continued)

yes

Is the air-flow sensor potentiometer O.K.?

- Is the potentiometer wiper path O.K.?
- Is the stroke signal free of defects?

no

yes

Potentiometer test: (noise test).

- Unscrew the air-flow sensor from the air filter housing and release the hose clamp. Leave the connecting plug plugged in. Set the motortester to the special input and using the special cable, connect it to the air-flow sensor Term. 7 (red clip) and Term. 5 (black clip).

• Prepare adapter lead:

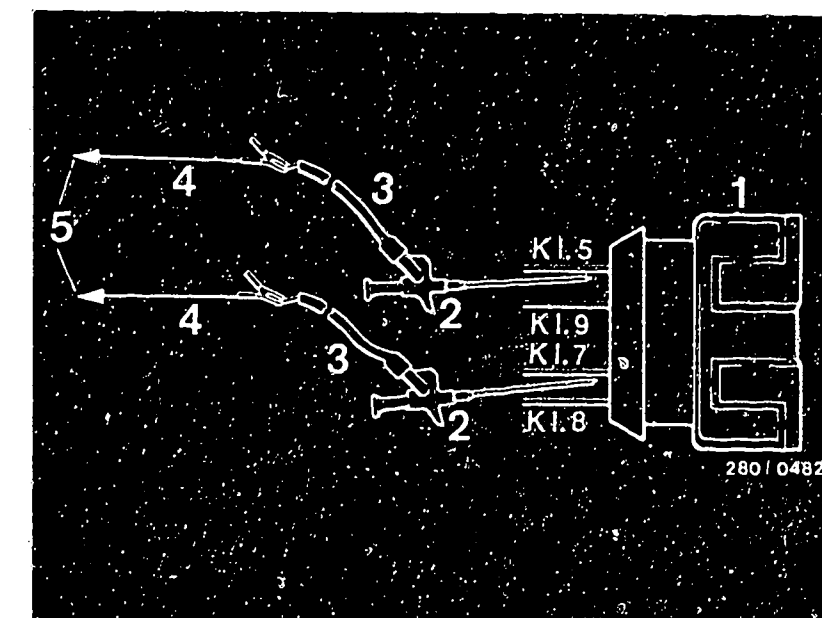
User-fabricated: Two leads approx. 1 m long with a cross-section of approx. 1.0 m² and a 10 A fuse. 2 test prods are fastened to the one side. On the other end, remove insulation for approx. 2 cm and clamp on the clamps of the special input connecting lead.

Caution!

Insulate bare connections on the adapter lead. (Danger of short-circuit.) Take measurements carefully into a connecting plug on the air-flow sensor. Do not bend any plug blades out of shape.

Set the control lever for picture adjustment on the motortester at the stop at the left (calibrated setting).

- Switch on the ignition. (Power supply through the auxiliary relay).



- 1 = Air-flow sensor connecting plug
- 2 = Terminal test prod
- 3 = Adapter lead (user-fabricated)
- 4 = Special input - connecting lead
- 5 = Motortester, special input
- K1. = Term.

Continued on F23/F24

Continued on F21/F22

F19

Poor throttle take-up
Peugeot 505 Turbo



F20

Poor throttle take-up
Peugeot 505 Turbo

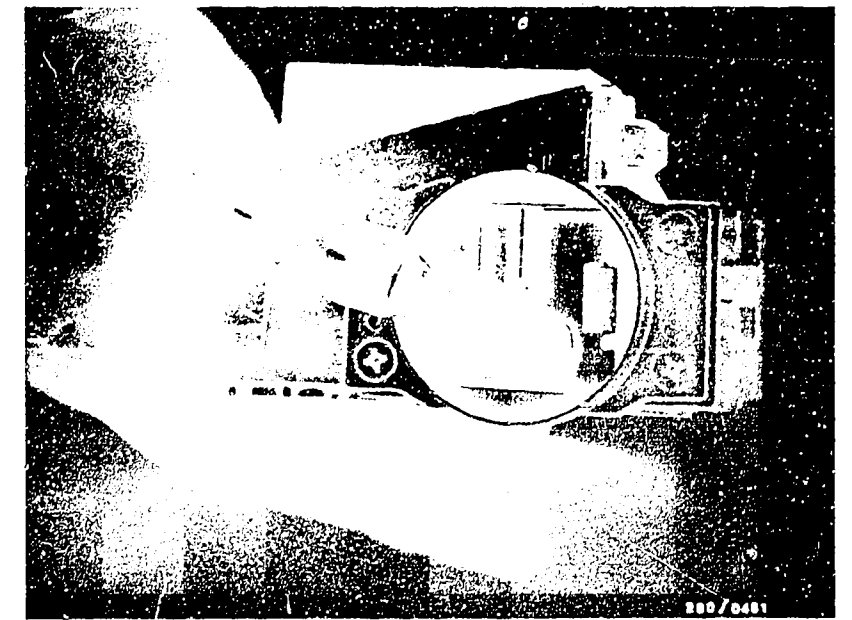


Poor throttle take-up (continued)

- Deflect the sensor flap in the air-flow sensor several times suddenly. If the air-flow sensor is good, a stroke signal without dips must appear on the oscilloscope. If the air-flow sensor is defective, a noise signal similar to that shown at the right appears. Take out and replace the air-flow sensor. Disconnect the adapter lead after the test and put on the rubber grommet properly. Put the air-flow sensor on. Put on all hoses and tighten them (leaks).

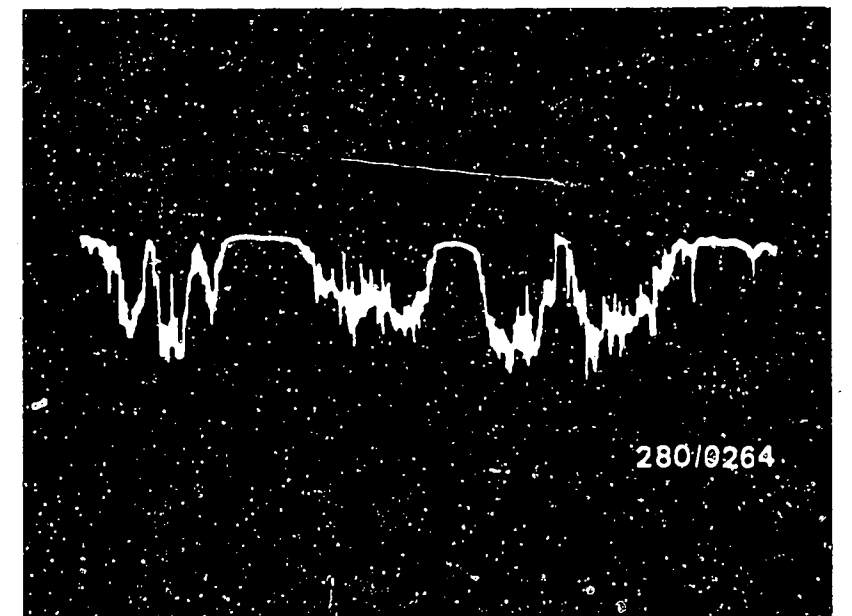
yes

Continued on F23/F24



Pressing on the sensor flap in the air-flow sensor

Noise signal from defective air-flow sensor



F21

Poor throttle take-up

Peugeot 505 Turbo



F22

Poor throttle take-up

Peugeot 505 Turbo



Poor throttle take-up (continued)

yes

Are all hoses correctly put on, without kinking or damage? Visual inspection.

- Has the air intake system been tested for leaks with 0.3 bar gauge pressure?

no

- Check that all the hoses on the air intake system and the fuel line system are put on Correctly without kinking or damage. If need be, take out and replace hoses. Eliminate leaks by using new seals or by tightening the connecting screws.
- Testing for leaks:
Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Take off the hose after the auxiliary-air device and, using a compressed air gun blow air (0.3 bar gauge pressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve all the way. Brush or spray all seal locations with soapy water. Leaks can also occur at the following points on the engine: The oil dipstick is not inserted firmly, defective cover seal for the oil filler neck, etc. Bubbling or foaming indicates leaks.

yes

Continued on G1/G2



- 1 = Intake manifold
- 2 = Throttle-valve assembly
- 3 = Air guide pipe

F23

Poor throttle take-up
Peugeot 505 Turbo



F24

Poor throttle take-up
Peugeot 505 Turbo



Poor throttle take-up (continued)

yes

Have the idle speed and the CO been correctly set?

no

Idle speed and CO adjustment:
Exhaust adjustment using the lambda closed-loop control tester with engine at normal operating temperature and at idle speed.

- Idle speed 850 ... 950 min⁻¹
- CO adjustment using the lambda integrator voltage

Lambda closed-loop control:

Closed-loop control operation (sensor connected): Reading for voltage fluctuates between two values.

Open-loop control operation (sensor lead taken apart): Reading for voltage must be equal to the average of the fluctuating values.

If not, adjust the bypass screw (CO adjusting screw) in the air-flow sensor (socket hex screw, AF = 5 mm). Recheck the idle speed and the reading for voltage. If need be, make the corrections in several steps.
After adjustment, put in a new seal (1 283 123 004).

yes

Idle speed cannot be set.

yes

The trouble-shooting program for the customer complaint

"Poor throttle take-up"

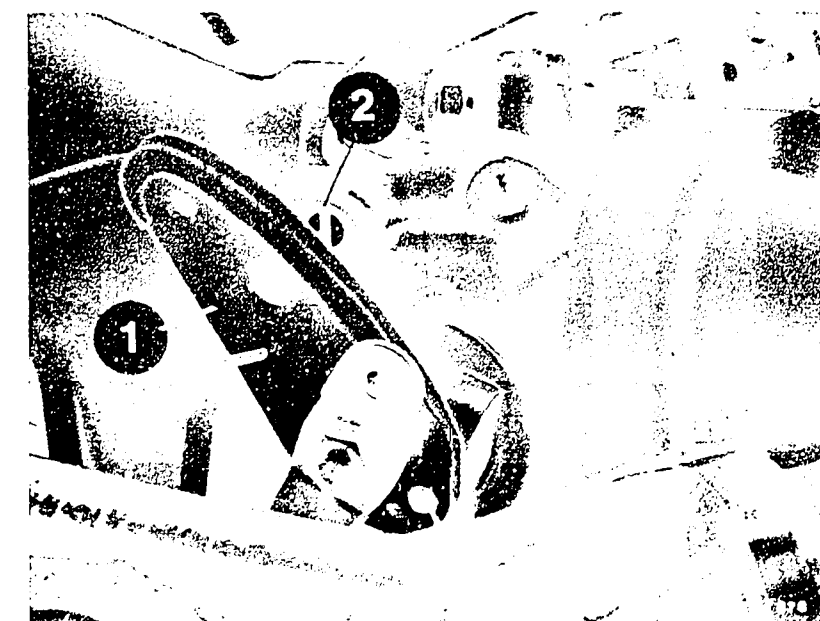
has been completed.

Has the defect been eliminated?

no

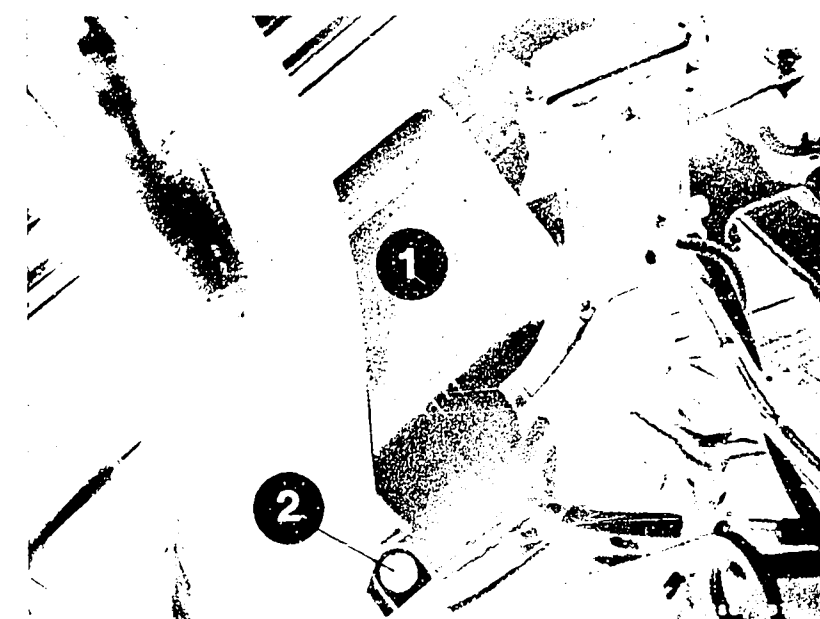
Additional possible defects:

- Customer complaint has been incorrectly identified (see Coordinates B3...B8). If the defect has not been identified using the "Targeted trouble-shooting plan", see the "Detailed trouble-shooting plan" (Coordinates B3...B4).
- The engine is not O.K. mechanically (compression, valve setting, engine timing, wear on camshaft).



1 = Throttle valve lever
2 = Idle-speed-adjusting screw

1 = Air-flow sensor
2 = CO-adjusting screw



G1

Poor throttle take-up
Peugeot 505 Turbo



G2

Poor throttle take-up
Peugeot 505 Turbo



ENGINE MISSING IN ALL DRIVING CONDITIONS

Trouble-shooting program according to customer complaint

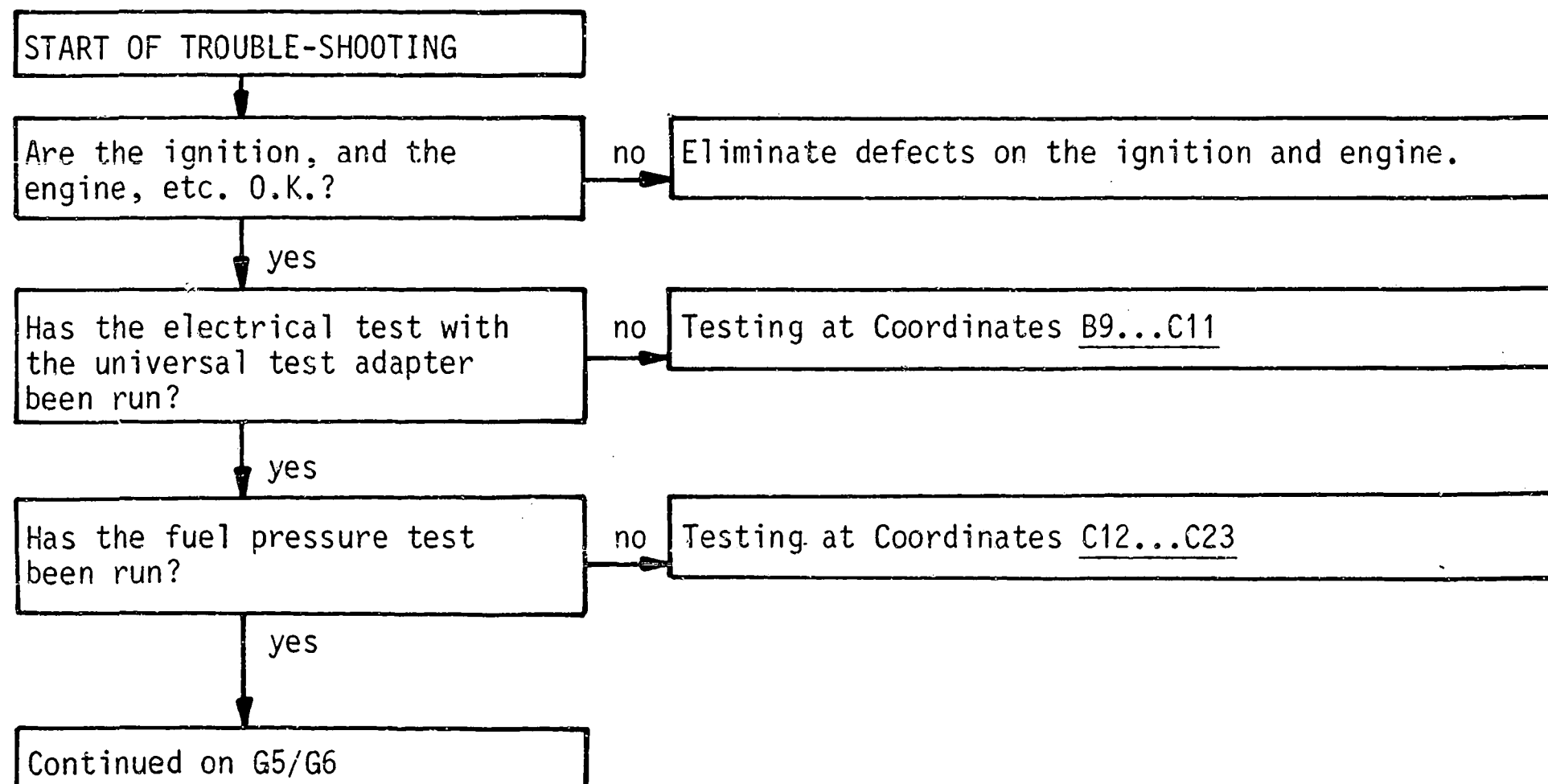
How to use the program

The testing is organized in three columns of boxes:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the tests and settings on components.
- The column at the right contains the figures that go with the text and the legend for the items in the figures.

If it is possible to answer the questions unambiguously with "yes" even without a test, proceed to the question next below.

On the other hand, if the answer is "no", and a defect is suspected, you must shift to the column of boxes in the middle and carry out the tests indicated there. After completion of the testing, the trouble-shooting is continued at that point at which that shift was made.

**G3**

Engine missing in all driving conditions
Peugeot 505 Turbo

**G4**

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)

yes

Is the alternator with the regulator O.K.?

- No engine missing due to voltage peaks?

no

- With the engine shut off, disconnect the plug from the alternator. Start the engine. If missing is corrected, check the alternator and the regulator. Voltage peaks can be seen on the ignition oscilloscope.

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does the air-flow sensor flap move freely?
- Does the air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerance?

Between Term. 8 and Term. 9:

160 ... 300 Ω

Between Term. 7 and Term. 5 (deflect the air-flow sensor flap):

60 ... 1000 Ω

no

Testing:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must return on its own to the stop. The air-flow sensor flap must not stick when being opened. Watch for friction markings. If the inside of the air-flow sensor is very dirty, clean it, and rub it out with a lint-free rag. If there are friction markings, the air-flow sensor must be taken out and replaced.

- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent out of shape. The air-flow sensor must be taken out and replaced.

- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.

Test specification: 160 ... 300 Ω

Connect the ohmmeter to Term. 7 and Term. 5 of the air-flow sensor.

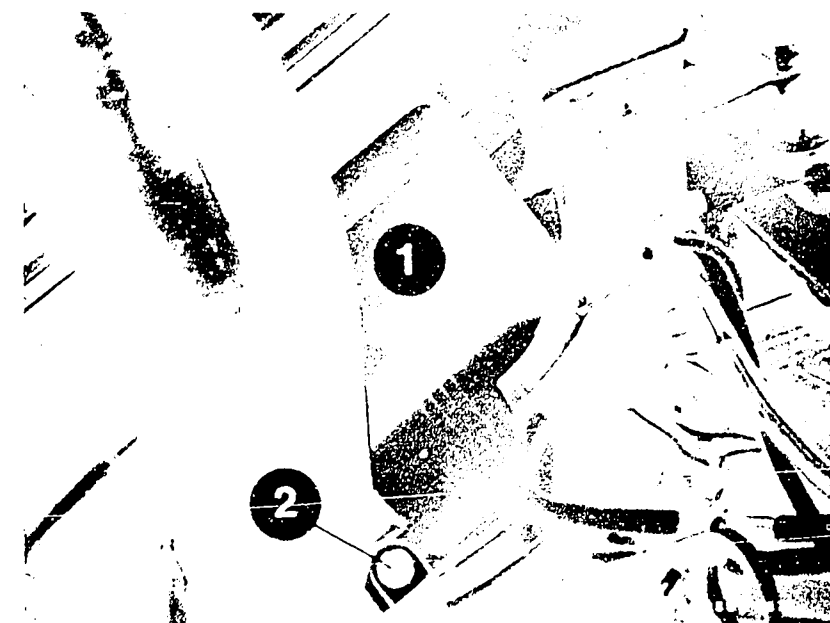
Deflect the air-flow sensor flap all the way.

Test specification: 60 ... 1000 Ω

Caution! After completion of the test, the air-flow sensor must be screwed back onto the air filter housing.

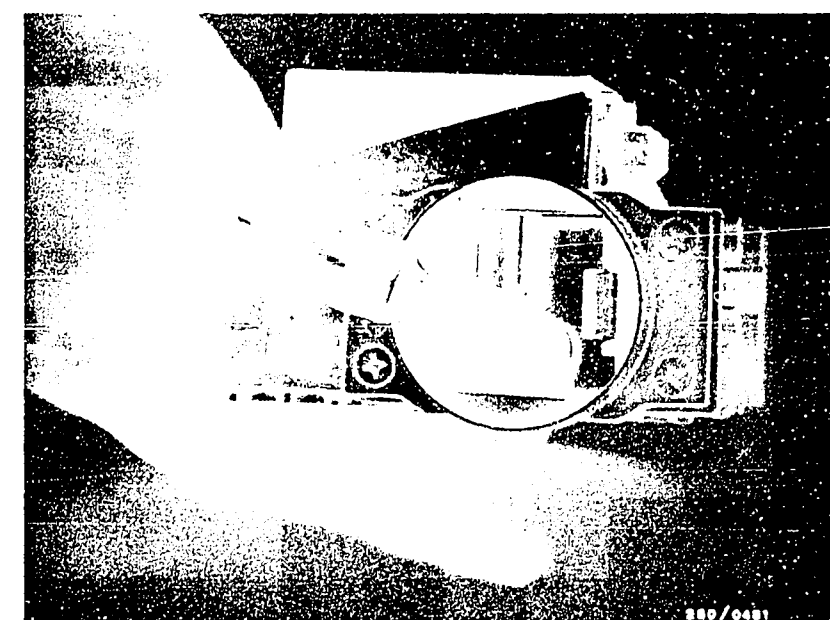
yes

Continued on G7/G8



1 = Air-flow sensor
2 = CO-adjusting screw

Pressing on the sensor flap in the air-flow sensor.



G5

Engine missing in all driving conditions
Peugeot 505 Turbo



G6

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)

yes

Is the air-flow sensor potentiometer O.K.?

- Is the potentiometer wiper path O.K.?
- Is the stroke signal free of defects?

no

Potentiometer test: (noise test).

- Unscrew the air-flow sensor from the air filter housing and release the hose clamp. Leave the connecting plug plugged in. Set the motortester to the special input and using the special cable, connect it to the air-flow sensor Term. 7 (red clip) and Term. 5 (black clip).

• Prepare adapter lead:

User-fabricated: Two leads approx. 1 m long with a cross-section of approx. 1.0 mm² and a 10 A fuse. 2 test prods are fastened to the one side. On the other end, remove insulation for approx. 2 cm and clamp on the clamps of the special input connecting lead.

Caution!

Insulate bare connections on the adapter lead. (Danger of short-circuit.) Take measurements carefully into a connecting plug on the air-flow sensor. Do not bend any plug blades out of shape.

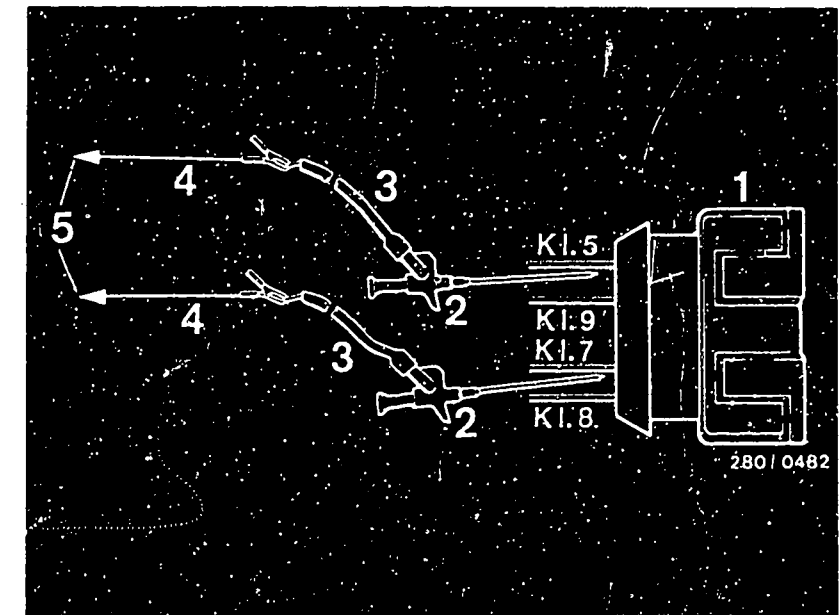
Set the control lever for picture adjustment on the motortester at the stop at the left (calibrated setting).

- Switch on the ignition. (Power supply through the auxiliary relay.)

yes

Continued on G11/G12

Continued on G9/G10



- 1 = Air-flow sensor connecting plug
- 2 = Terminal test prod
- 3 = Adapter lead (user-fabricated)
- 4 = Special input - connecting lead
- 5 = Motortester, special input
- Kl. = Term.

G7

Engine missing in all driving conditions
Peugeot 505 Turbo



G8

Engine missing in all driving conditions
Peugeot 505 Turbo

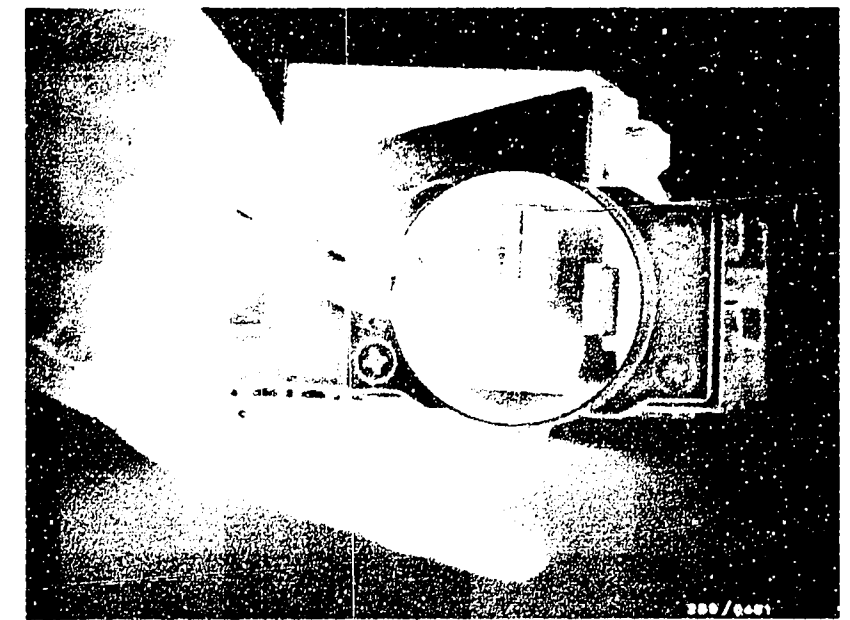


Engine missing in all driving conditions (continued)

- Deflect the sensor flap in the air-flow sensor several times suddenly. If the air-flow sensor is good, a stroke signal without dips must appear on the oscilloscope. If the air-flow sensor is defective, a noise signal similar to that shown at the right appears. Take out and replace the air-flow sensor. Disconnect the adapter lead after the test and put on the rubber grommet properly. Put the air-flow sensor on. Put on all hoses and tighten them (leaks).

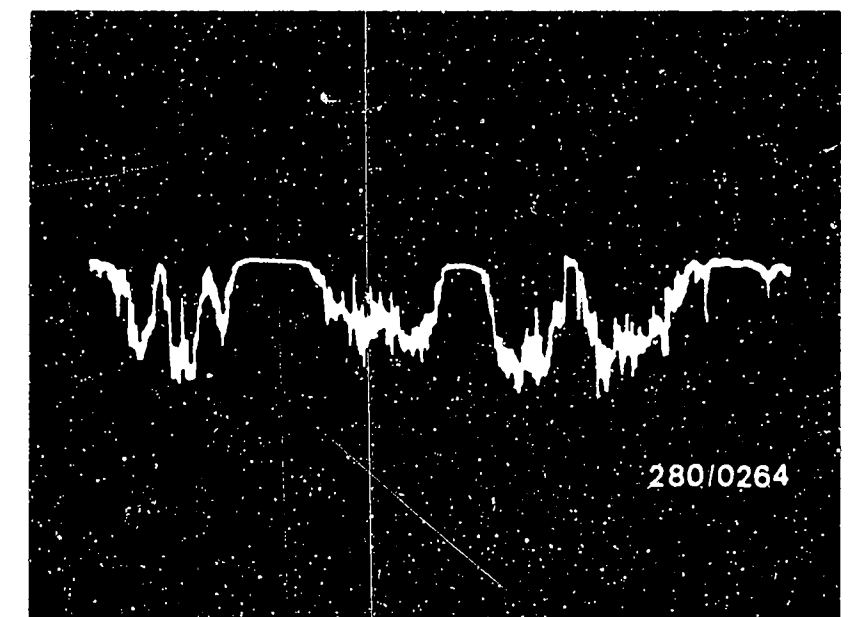
yes

Continued on G11/12



Pressing on the sensor flap in the air-flow sensor

Noise signal from defective air-flow sensor



G9

Engine missing in all driving conditions
Peugeot 505 Turbo.



G10

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)

yes

Is the fuel delivery from the electric fuel pump O.K.?

Test specification:
min. 750 cm³/30 s

no

Measuring the fuel delivery:

To test, release the return hose from the pressure regulator and connect a separate hose line. Direct the end of the hose into a 5 l container with a measuring scale.

Disconnect the control relay. Insert a jumper between Term. 87 and Term. 30 in the connecting socket. The electric fuel pump must run.

Test specification:

min.: 750 cm³/30 s

N.B.!

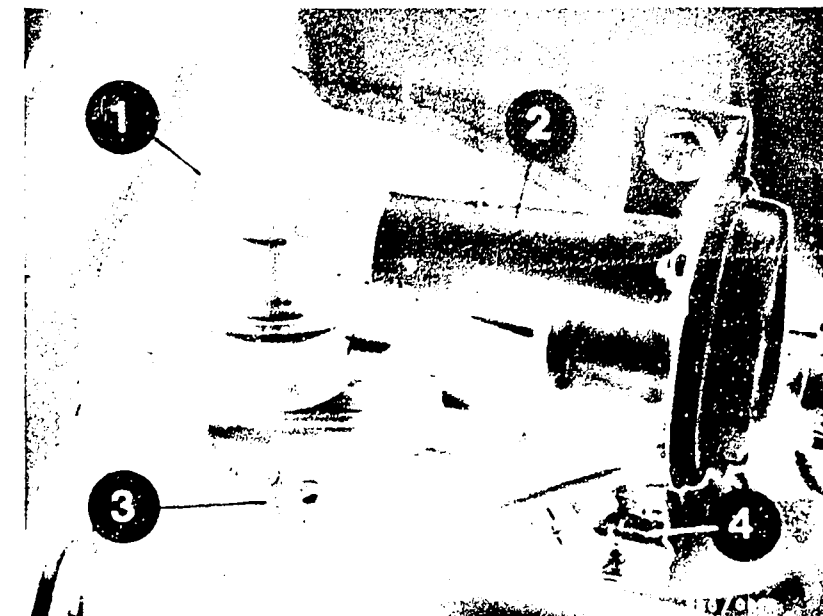
It is absolutely necessary that the jumper be removed after completion of the test.

Corrective action if test specification is not being attained:

- Fuel filter is clogged: take it out and replace it.
- Voltage at the connecting terminals of the electric fuel pump with the engine running: min. 12 V. If not, clean the contacts, eliminate any poor ground connection, take out and replace the leads.
- In-tank pre-supply pump not operating.
- Fuel pressure regulator defective: take it out and replace it (using parts kit 1 287 010 704).
- If fuel delivery too low, take out and replace the electric fuel pump.

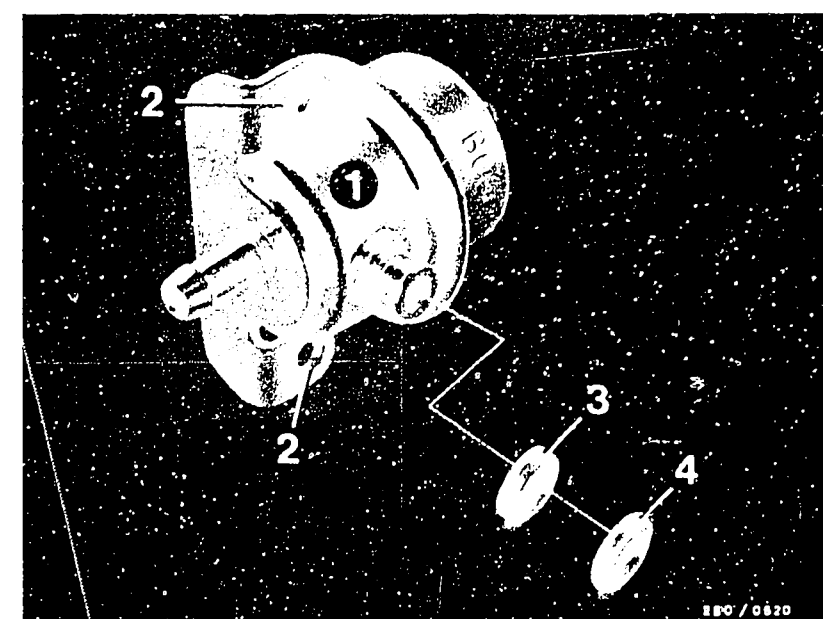
yes

Continued on G13/G14



- 1 = Pressure regulator
- 2 = Return hose
- 3 = Fuel return line
- 4 = Auxiliary-air device

- 1 = Pressure regulator
- 2 = Fastening hose
- 3 = Flat ring) Parts kit
- 4 = O-ring) 1 287 010 704



G11

Engine missing in all driving conditions
Peugeot 505 Turbo

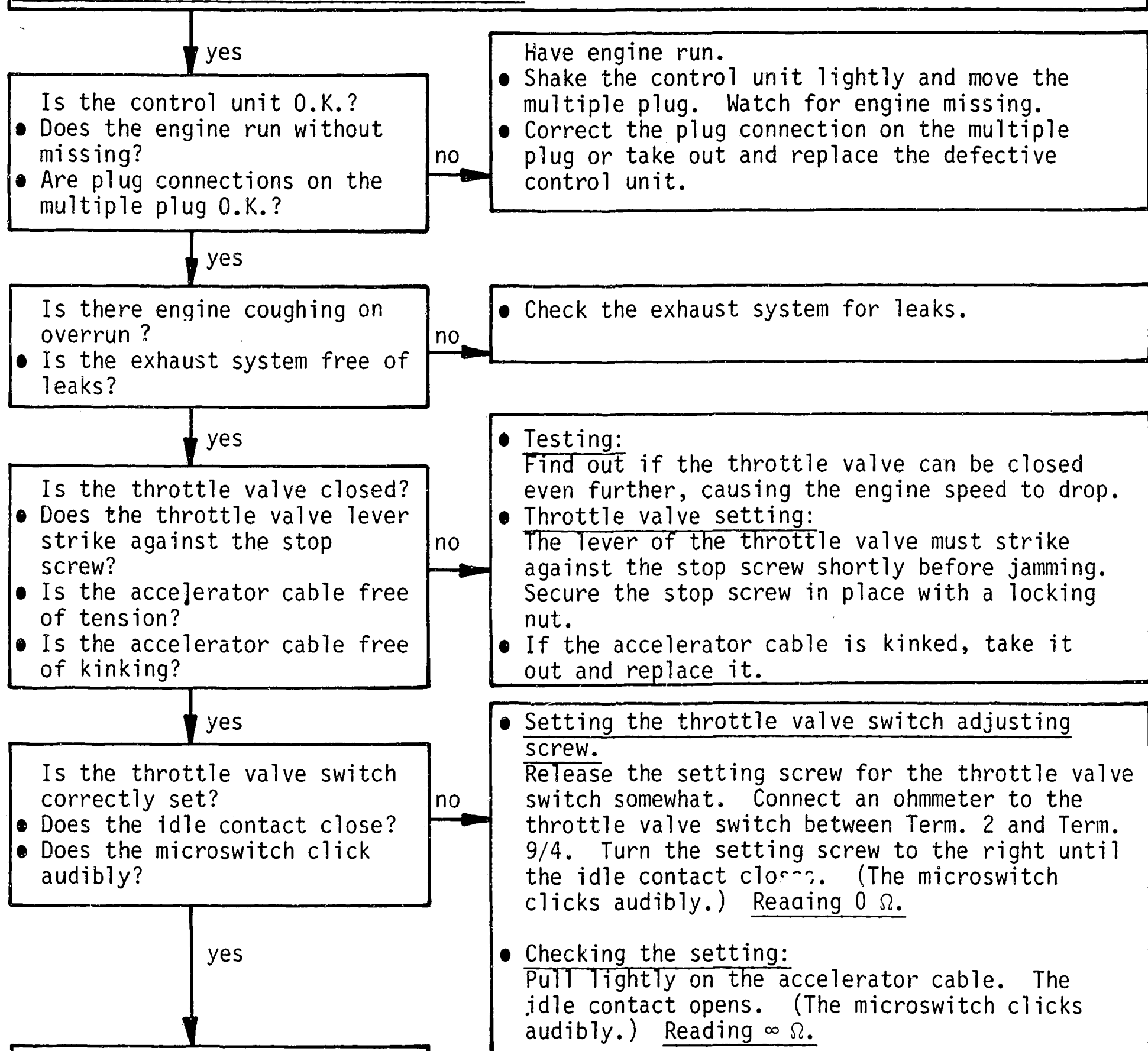


G12

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)



Continued on G15/G16



- 1 = Throttle valve lever
2 = Throttle valve stop screw
3 = Throttle valve switch adjusting screw
4 = Throttle valve switch

G13

Engine missing in all driving conditions
Peugeot 505 Turbo



G14

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)

yes

Does the engine cough on overrun?

Is the overrun cutoff O.K.?

- Is the control unit operating properly?

- Is the reinstatement speed O.K.?

Cold: 1650 min⁻¹
Warm: 950 min⁻¹

no

- Checking the operation of the overrun cutoff:
Connect the test lead as follows:
The two-pole plug connections on the test lead are inserted between one electric fuel-injection valve and its connecting lead.
Of the other two connecting terminals on the test lead, only one connecting terminal needs to be connected to the special input on the motortester. If the connection is correct, the pattern shown at the right appears on the oscilloscope. Watch the oscilloscope!
- Slowly run the engine up to 3000 min⁻¹. Fuel injection pulses must appear on the oscilloscope. Take foot from the accelerator pedal (idle setting). There are no longer any fuel injection pulses.
- Engine clearly at less than ambient temperature (+15° ... 30°C):
Starting from approx. 1650 min⁻¹, fuel injection pulses must reappear:
- Engine at normal operating temperature (approx. +80°C):
Starting from approx. 950 min⁻¹, fuel injection pulses must reappear.

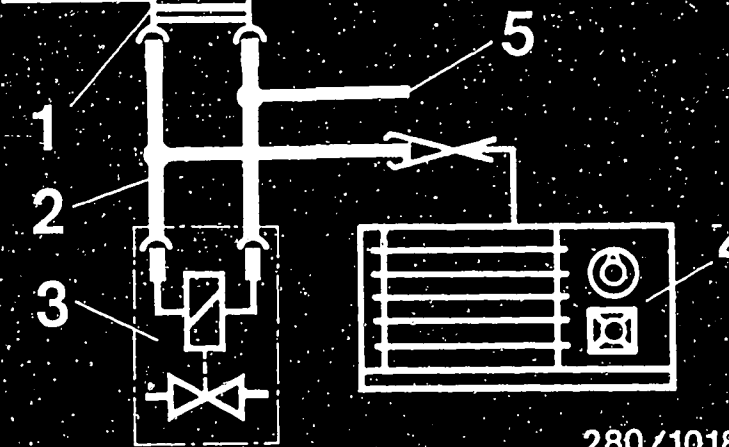
If there is a malfunction, take out and replace the control unit.

yes

Continued on G17/G18

Kl. 37

Kl. 12



Kl. = Term.

1 = Connecting plug for valve lead

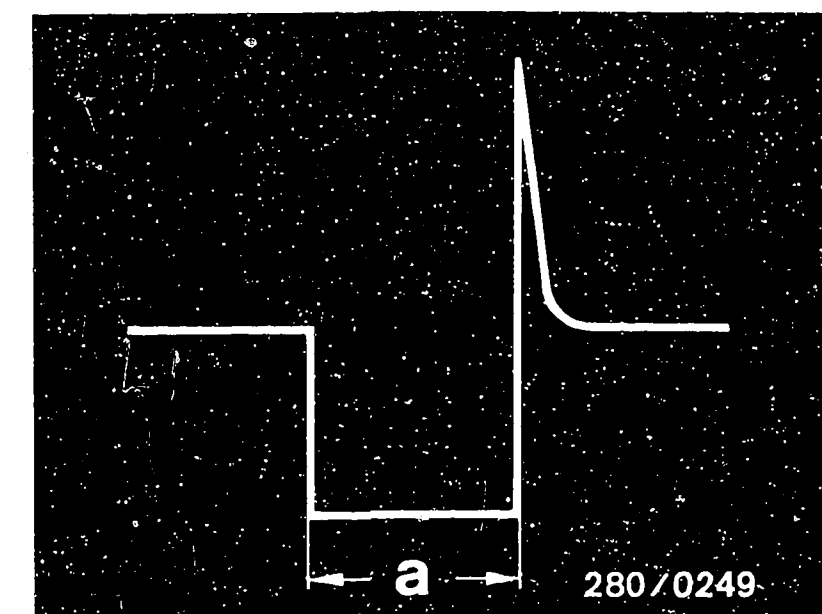
2 = Test lead 1 684 463 093

3 = Electric fuel-injection valve

4 = Motortester

5 = Free connection (Do not ground!)

Fuel injection pulses of a switched output stage (measured on the electric fuel-injection valve
a = pulse length (dependent on the engine load).



G15

Engine missing in all driving conditions
Peugeot 505 Turbo



G16

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)

yes

Has the operation of the electric fuel-injection valves been checked?

- Fuel injection pulses without interference or missing?
- Lines properly laid?
- No loose contacts in the plug connections?

no

- Connect test lead as follows: The two-pole connections on the test lead are inserted between one electric fuel-injection valve and its connecting lead. Of the two other connections of the test lead, only one connection terminal needs to be connected to the special input on the motortester.

Caution!

The free connecting terminal must not make contact with the vehicle ground!

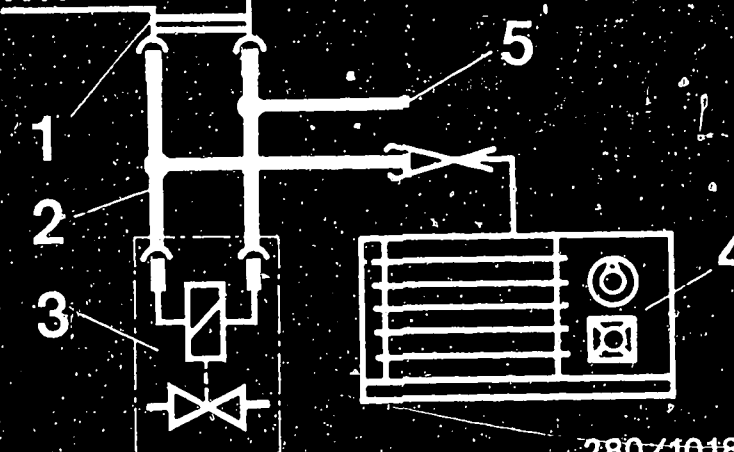
- If connected correctly, the pattern shown at the right appears on the oscilloscope. Using the test lead, the fuel-injection pulses can be checked on the electric fuel-injection valves using an ignition oscilloscope while the engine is running. If the pattern at the right is not obtained or if deviations can be seen (interference, missing, etc.), the other electric fuel-injection valves should also be examined.
- If there is interference: Check how the leads have been laid.
- If there is missing: Eliminate loose contacts in the leads or in the plug connections.

yes

Continued on G19/G20

Kl. 37

Kl. 12



Kl. = Term.

1 = Connecting plug for valve lead

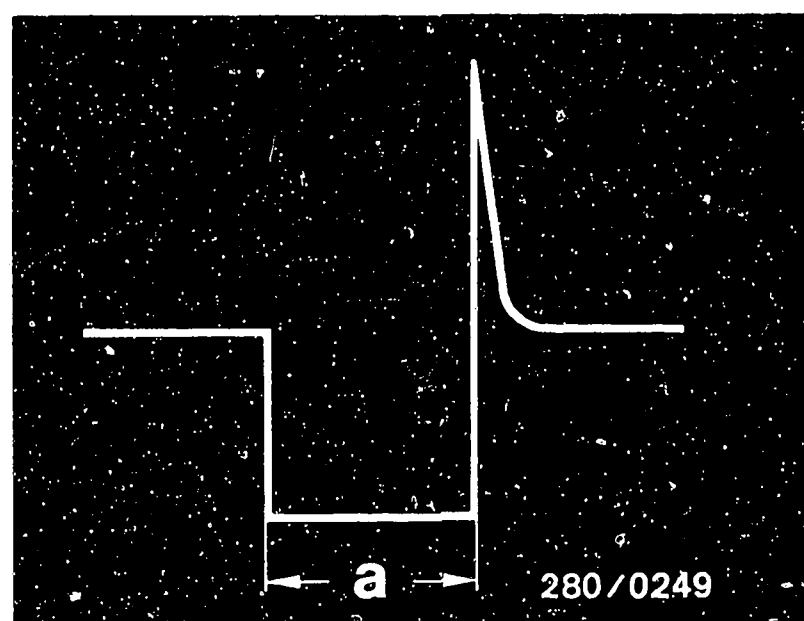
2 = Test lead 1 684 463 093

3 = Electric fuel-injection valve

4 = Motortester

5 = Free connection (do not ground!)

Fuel-injection pulses from a switched output stage (measured on the electric fuel-injection valve
a = Pulse length (dependent on the engine load).



G17

Engine missing in all driving conditions
Peugeot 505 Turbo



G18

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)

yes

Are the electric fuel-injection valves O.K. mechanically?

- Does the engine speed drop off if the fuel-injection valve connectors are disconnected one by one?
- Are the O-rings O.K.?
- Repair electric fuel-injection valves.

no

With the engine running, disconnect the electric fuel-injection valve connectors from the electric fuel-injection valves individually, one after the other, and plug them back on. If an electric fuel-injection valve is good, the engine speed must drop off.

Caution!

When replacing an electric fuel-injection valve, the valve installed must be electric fuel-injection valve 0 280 150 255. If the electric fuel-injection valves are operating properly but the O-rings are defective, proceed as follows:

- Instructions for repair

Take out the fuel distribution pipe. Disconnect the electrical connection. Carefully shove the retaining brackets out of the slot and pull the electric fuel-injection valve out of the fuel distributor pipe.

Caution!

Catch any fuel that escapes. Do not allow it to drip on to hot portions of the engine.

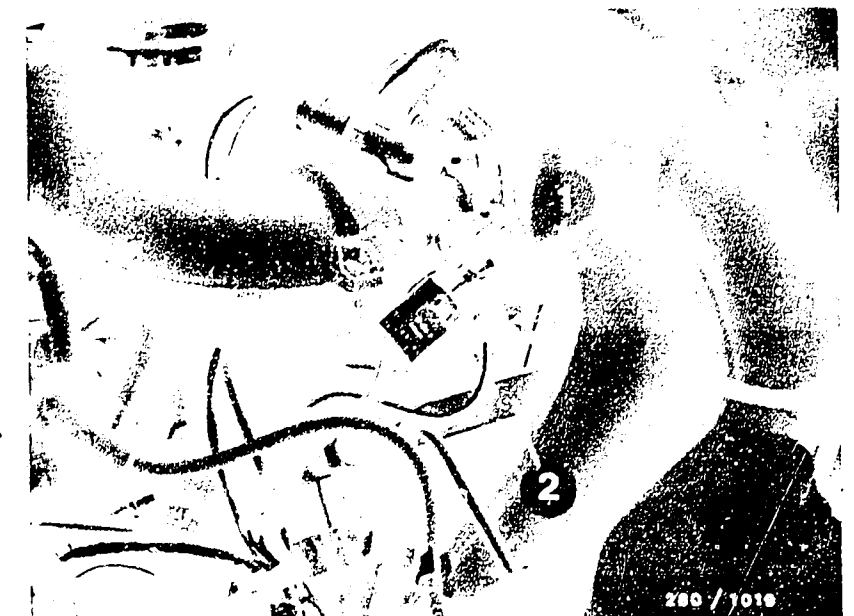
Caution!

It is not permissible to pry off the protection sleeve.

yes

Continued on G23/G24

Continued on G21/G22



1 = Electric fuel-injection valve (concealed below the intake tube)

2 = Fuel distribution pipe

1 = FD marking

2 = Top O-ring

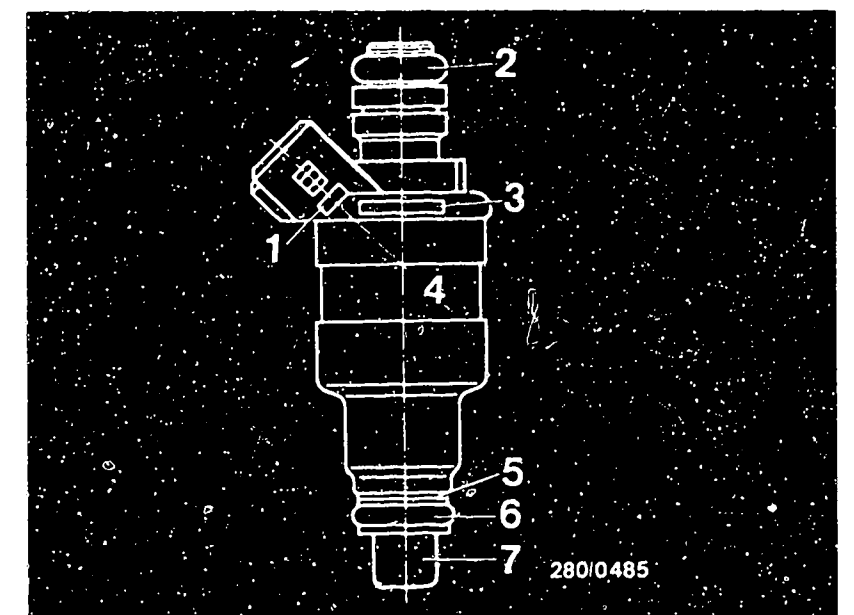
3 = Part number

4 = Electric fuel-injection valve

5 = Supporting plate

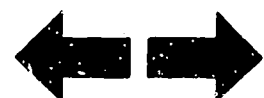
6 = Bottom O-ring

7 = Protection sleeve



G 19

Engine missing in all driving conditions
Peugeot 505 Turbo



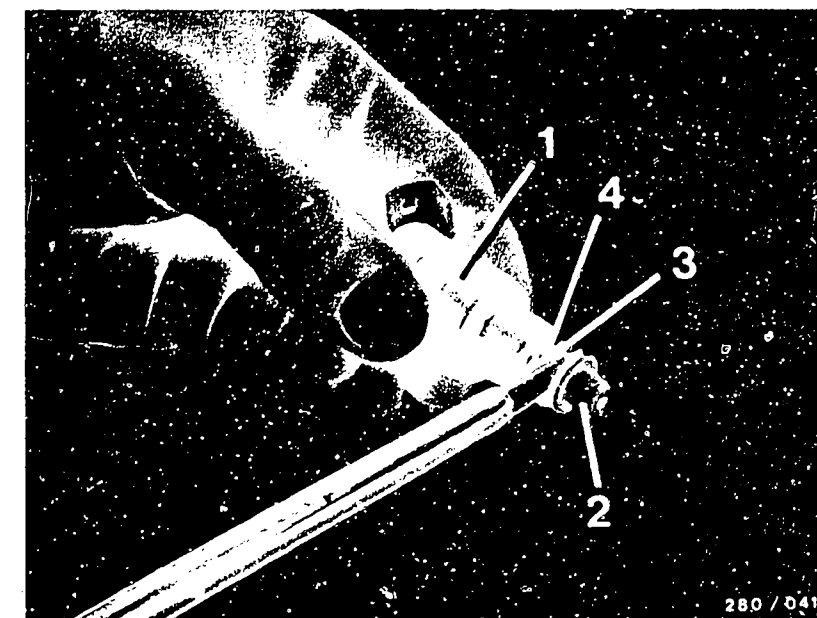
G 20

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)

Cut the bottom O-ring (intake tube) to pieces. Be careful! Do not damage the protection sleeve. Pull a new O-ring over the protection sleeve and its shoulder. In so doing, do not damage any parts.
Use parts kit 1 287 010 704.
When working on the electric fuel-injection valves, do not damage the value needle. If the top O-ring (fuel distribution pipe connection) is swollen or damaged, it also must be taken out and replaced.



- 1 = Electric fuel-injection valve
- 2 = Protection sleeve
- 3 = Bottom O-ring
- 4 = Supporting plate

yes

Continued on G23/G24

G21

Engine missing in all driving conditions
Peugeot 505 Turbo



G22

Engine missing in all driving conditions
Peugeot 505 Turbo



Engine missing in all driving conditions (continued)

yes

Have the idle speed and the CO been correctly set?

no

Idle speed and CO adjustment:
Exhaust adjustment using the lambda closed-loop control tester with engine at normal operating temperature and at idle speed.

- Idle speed 850 ... 950 min⁻¹
- CO adjustment using the lambda integrator voltage

Lambda closed-loop control:

Closed-loop control operation (sensor connected):	Reading for voltage fluctuates between two values.
Open-loop control operation (sensor lead taken apart):	Reading for voltage must be equal to the average of the fluctuating values.

If not, adjust the bypass screw (CO-adjusting screw) in the air-flow sensor (socket hex screw, AF = 5 mm). Recheck the idle speed and the reading for voltage. If need be, make the corrections in several steps.
 After adjustment, put in a new seal (1 283 123 004).

yes

Idle speed cannot be set.

The trouble-shooting program for the customer complaint

"Engine missing in all driving conditions,"

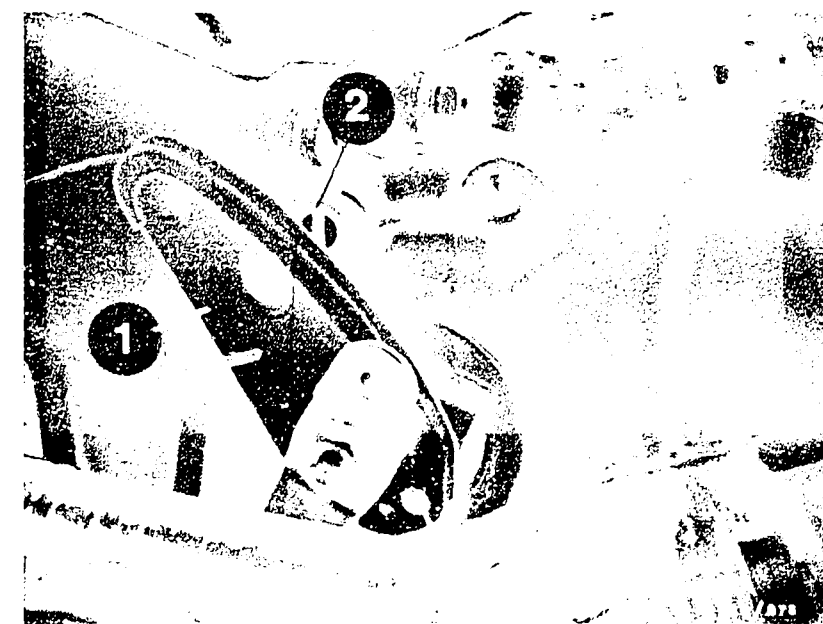
has been completed.

Has the defect been eliminated?

no

Additional possible defects:

- Customer complaint has been incorrectly identified (see Coordinates B3...B8). If the defect has not been identified using the "Targeted trouble-shooting plan", see the "Detailed trouble-shooting plan" (Coordinates B3...B4).
- The engine is not O.K. mechanically, (compression, valve setting, engine timing, wear on camshaft).



1 = Throttle valve lever
 2 = Idle speed adjusting screw

1 = Air-flow sensor
 2 = CO-adjusting screw



POOR MILEAGE

Trouble-shooting program according to customer complaint

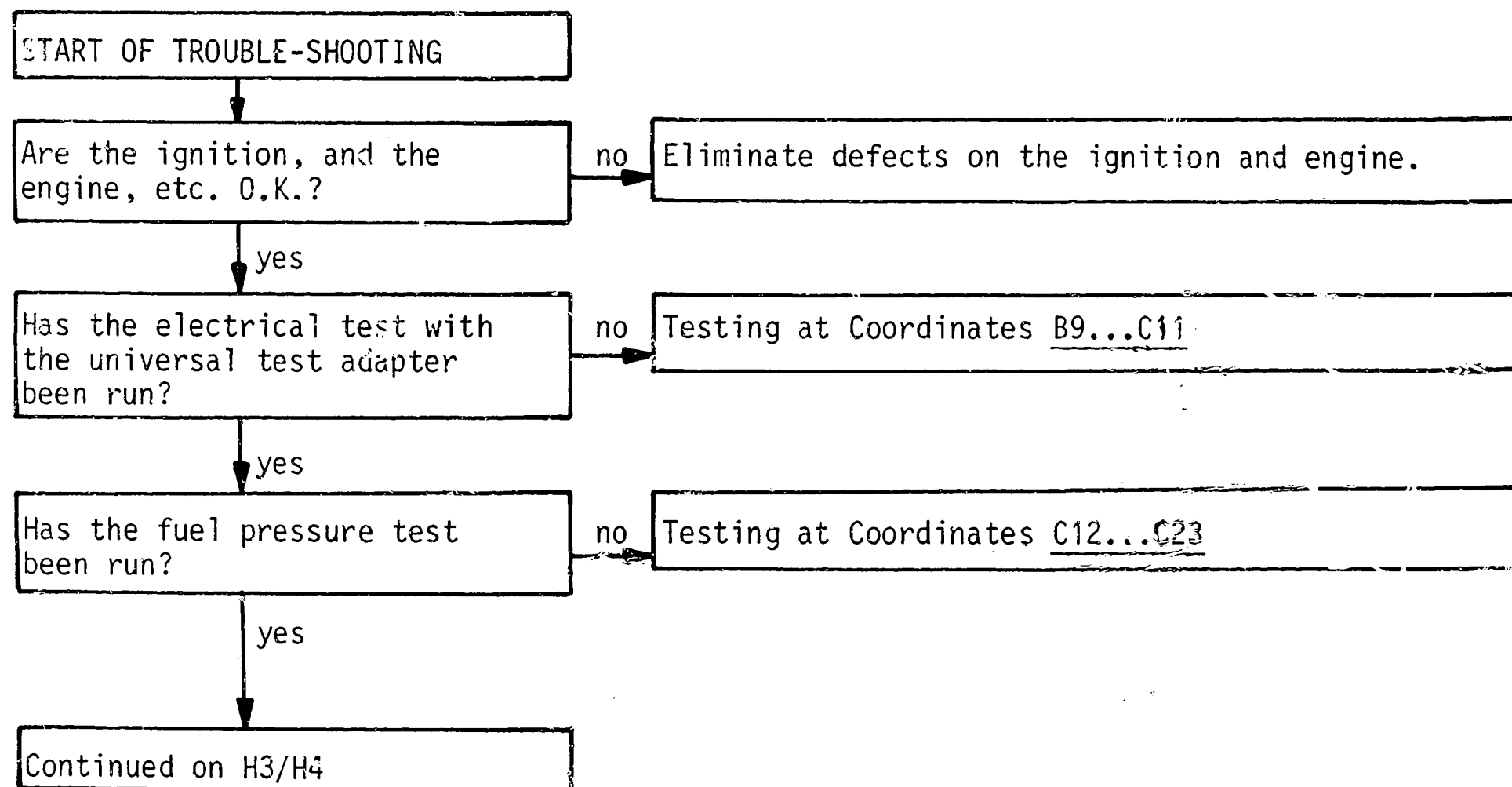
How to use the program

The testing is organized in three columns of boxes:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the tests and settings on components.
- The column at the right contains the figures that go with the text and the legend for the items in the figures.

If it is possible to answer the questions unambiguously with "yes" even without a test, proceed to the question next below.

On the other hand, if the answer is "no", and a defect is suspected, you must shift to the column of boxes in the middle and carry out the tests indicated there. After completion of the testing, the trouble-shooting is continued at that point at which that shift was made.



H1

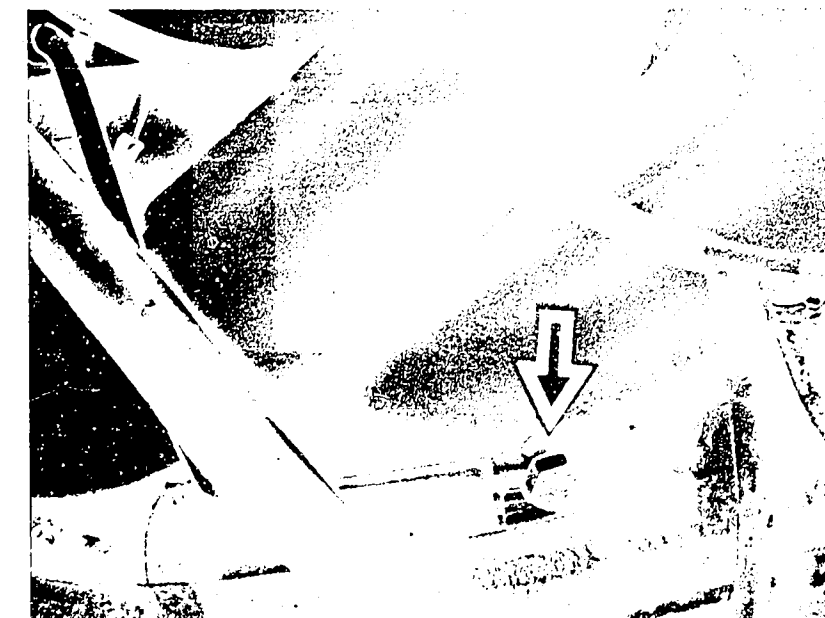
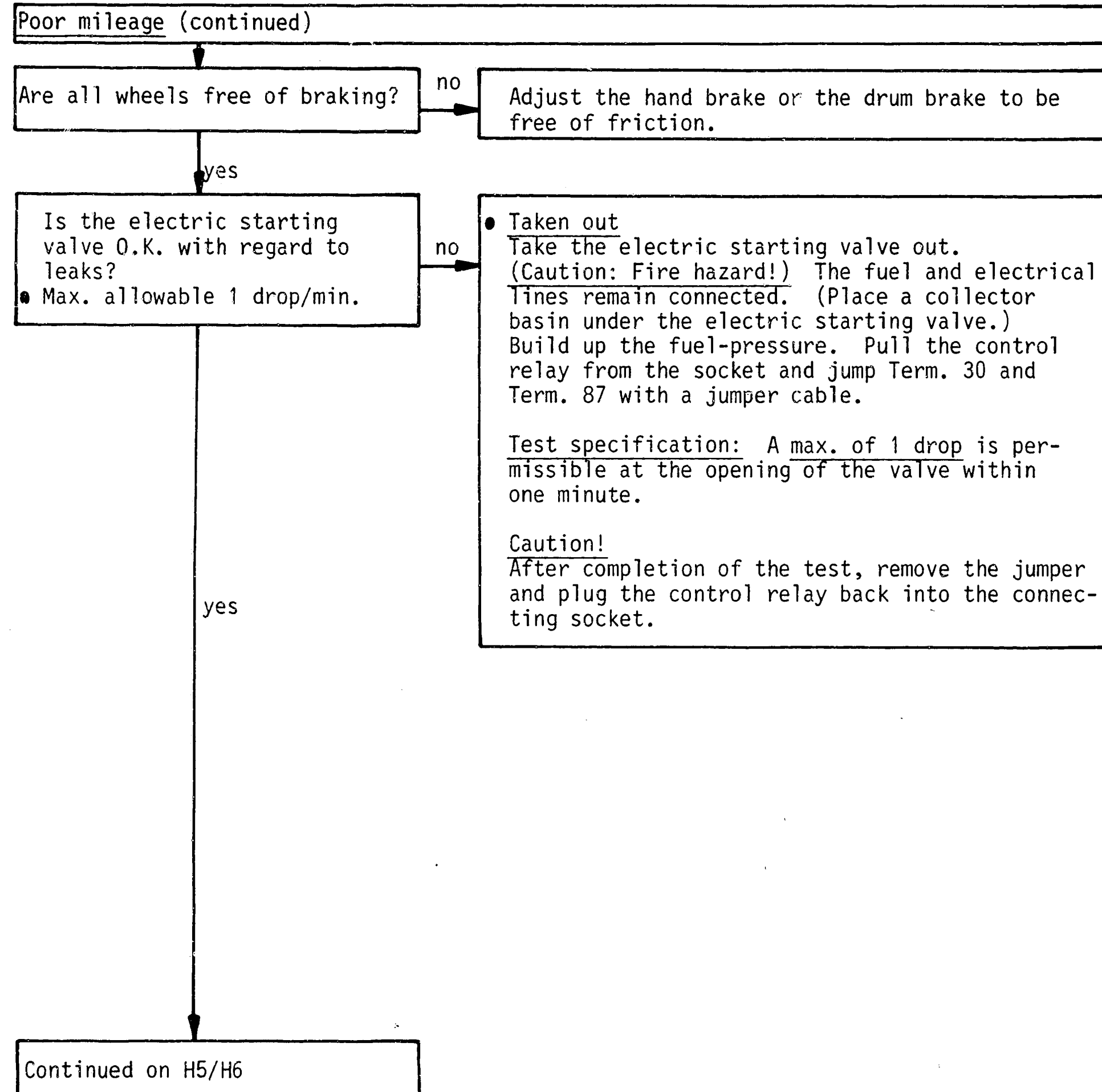
Poor mileage
Peugeot 505 Turbo



H2

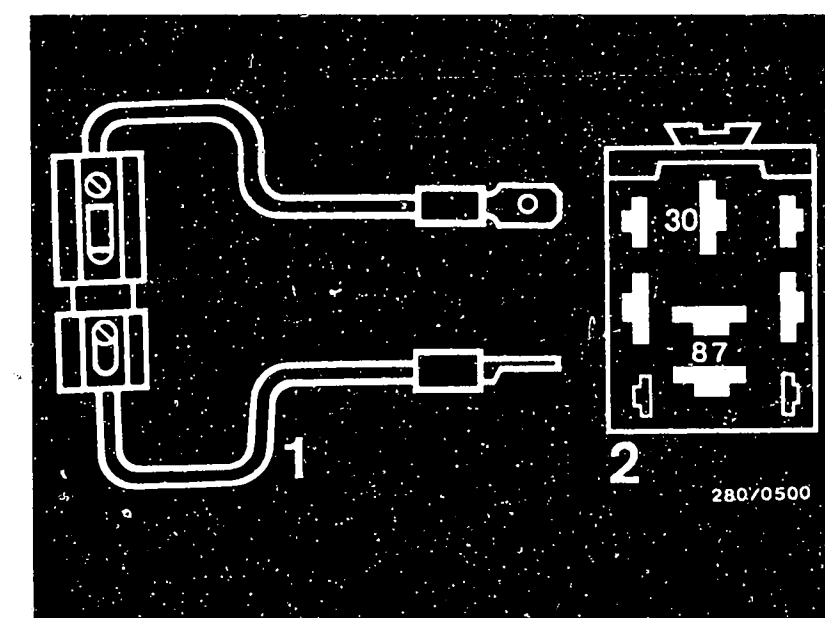
Poor mileage
Peugeot 505 Turbo





Arrow = Electric starting valve

- 1 = Jumper with fuse holder and 10 A fuse (user-fabricated)
- 2 = Top view of connection socket



H3

Poor mileage
Peugeot 505 Turbo



H4

Poor mileage
Peugeot 505 Turbo



Poor mileage (continued)

yes

Are the electric fuel-injection valves O.K. mechanically?

- Does the engine speed drop off if the fuel-injection valve connectors are disconnected one by one?
- Are the O-rings O.K.?
- Repair electric fuel-injection valves.

no

With the engine running, disconnect the electric fuel-injection valve connectors from the electric fuel-injection valves individually, one after the other, and plug them back on. If an electric fuel-injection valve is good, the engine speed must drop off.

Caution!

When replacing an electric fuel-injection valve, the valve installed must be electric fuel-injection valve 0 280 150 255. If the electric fuel-injection valves are operating properly but the O-rings are defective, proceed as follows:

• Instructions for repair

Take out the fuel distribution pipe. Disconnect the electrical connection. Carefully shove the retaining brackets out of the slot and pull the electric fuel-injection valve out of the fuel distributor pipe.

Caution!

Catch any fuel that escapes. Do not allow it to drip on to hot portions of the engine.

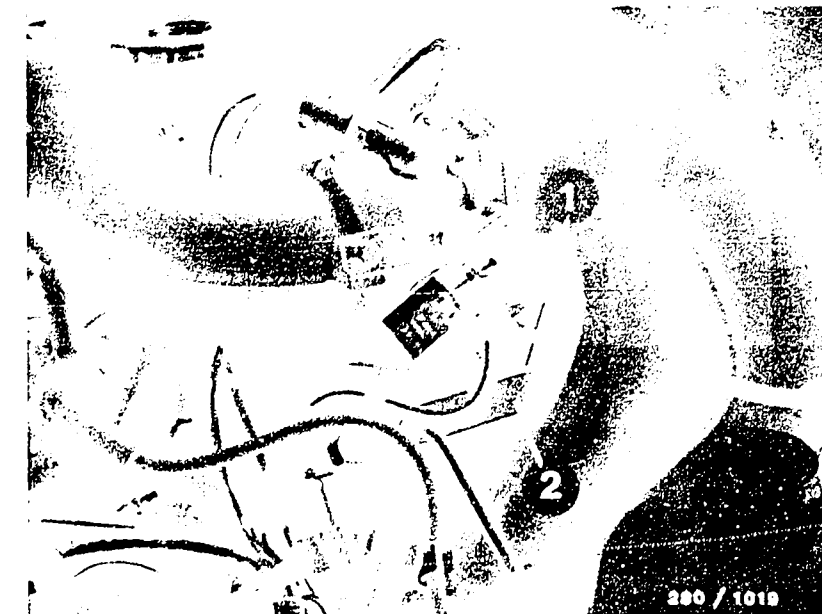
Caution!

It is not permissible to pry off the protection sleeve.

yes

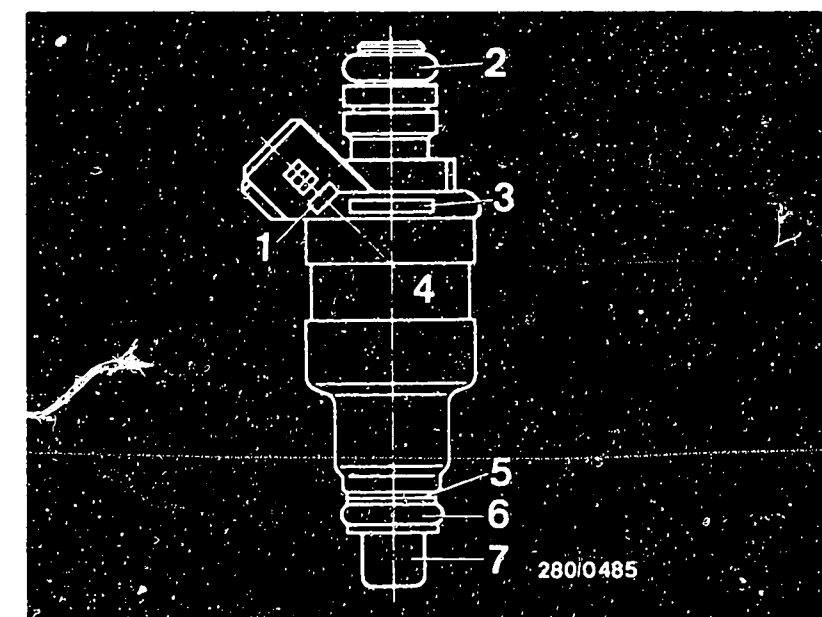
Continued on H9/H10

Continued on H7/H8



- 1 = Electric fuel-injection valve (concealed below the intake tube)
- 2 = Fuel distribution pipe

- 1 = FD marking
- 2 = Top O-ring
- 3 = Part number
- 4 = Electric fuel-injection valve
- 5 = Supporting plate
- 6 = Bottom O-ring
- 7 = Protection sleeve



H5

Poor mileage

Peugeot 505 Turbo



H6

Poor mileage

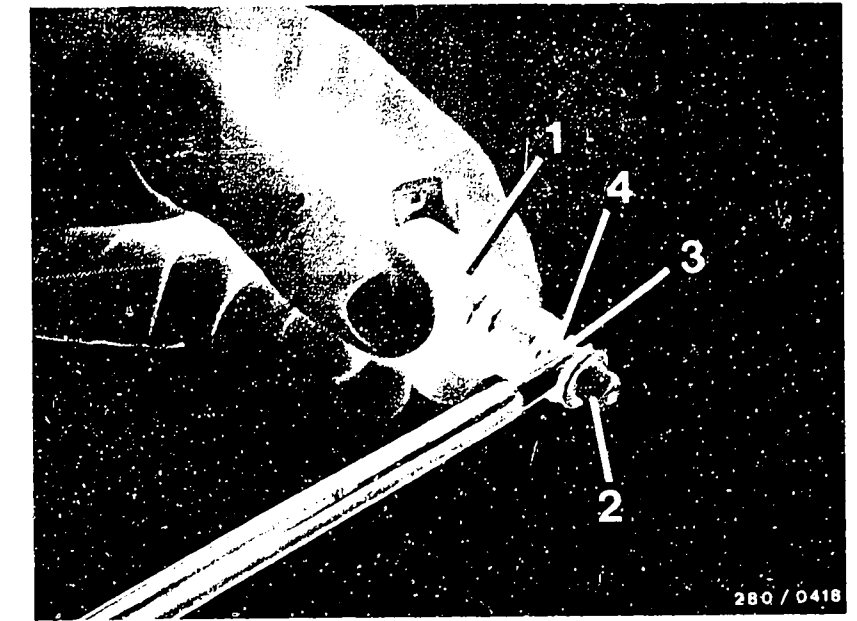
Peugeot 505 Turbo



Poor mileage (continued)

Cut the bottom O-ring (intake tube) to pieces. Be careful! Do not damage the protection sleeve. Pull a new O-ring over the protection sleeve and its shoulder. In so doing, do not damage any parts.
Use parts kit 1 287 010 704.
When working on the electric fuel-injection valves, do not damage the valve needle. If the top O-ring (fuel distribution pipe connection) is swollen or damaged, it also must be taken out and replaced.

yes



- 1 = Electric fuel-injection valve
- 2 = Protection sleeve
- 3 = Bottom O-ring
- 4 = Supporting plate

Continued on H9/H10

H7

Poor mileage
Peugeot 505 Turbo



H8

Poor mileage
Peugeot 505 Turbo



Poor mileage (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does the air-flow sensor flap move freely?
- Does the air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerance?
Between Term. 8 and Term. 9:
160 ... 300

Between Term. 7 and Term. 5
(deflect the air-flow sensor flap):

60 ... 1000 Ω

no

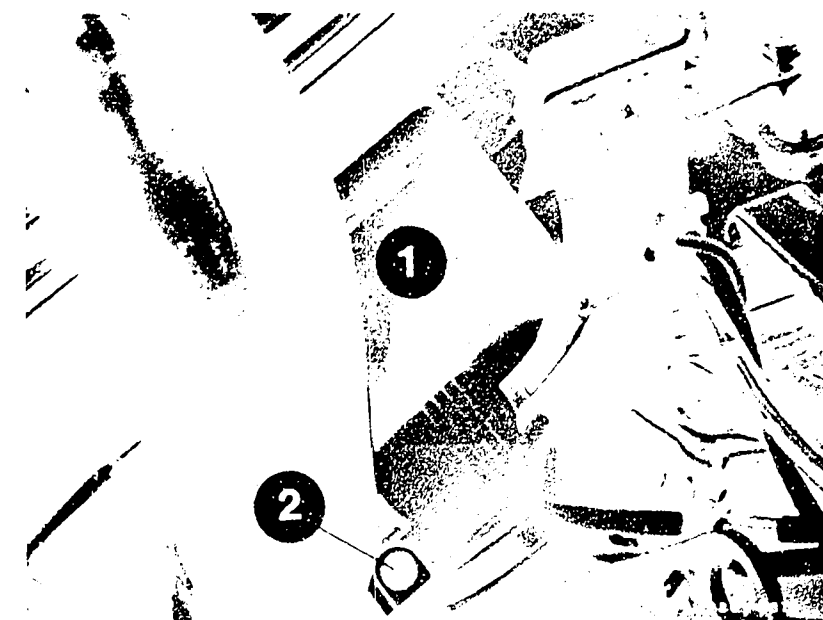
Testing:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must return on its own to the stop. The air-flow sensor flap must not stick when being opened. Watch for friction markings. If the inside of the air-flow sensor is very dirty, clean it, and rub it out with a lint-free rag. If there are friction markings, the air-flow sensor must be taken out and replaced.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent out of shape. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specification: 160 ... 300 Ω
Connect the ohmmeter to Term. 7 and Term. 5 of the air-flow sensor.
Deflect the air-flow sensor flap all the way.
Test specification: 60 ... 1000 Ω

Caution! After completion of the test, the air-flow sensor must be screwed back onto the air filter housing.

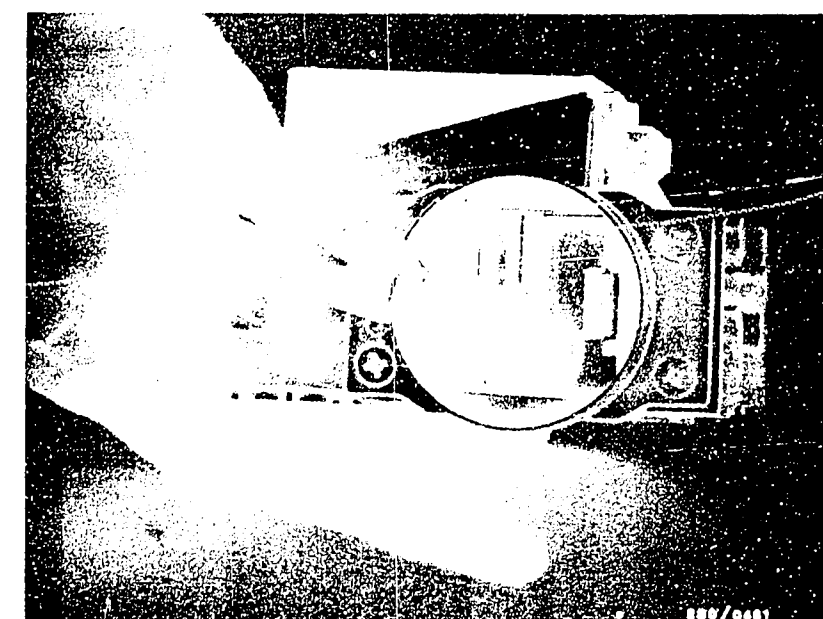
yes

Continued on H11/H12



1 = Air-flow sensor
2 = CO-adjusting screw

Pressing on the sensor flap in the air-flow sensor.



H9

Poor mileage
Peugeot 505 Turbo



H10

Poor mileage
Peugeot 505 Turbo



Poor mileage (continued)

yes

Have the idle speed and the CO been correctly set?

no

Idle speed and CO adjustment:
Exhaust adjustment using the lambda closed-loop control tester with engine at normal operating temperature and at idle speed.

- Idle speed 850 ... 950 min⁻¹
- CO adjustment using the lambda integrator voltage

Lambda closed-loop control:

Closed-loop control operation (sensor connected):

Reading for voltage fluctuates between two values.

Open-loop control operation (sensor lead taken apart):

Reading for voltage must be equal to the average of the fluctuating values.

If not, adjust the bypass screw (CO-adjusting screw) in the air-flow sensor (socket hex screw, AF = 5 mm). Recheck the idle speed and the reading for voltage. If need be, make the corrections in several steps.
After adjustment, put in a new seal (1 283 123 004).

yes

Idle speed cannot be set.

The trouble-shooting program for the customer complaint

"Poor mileage,"

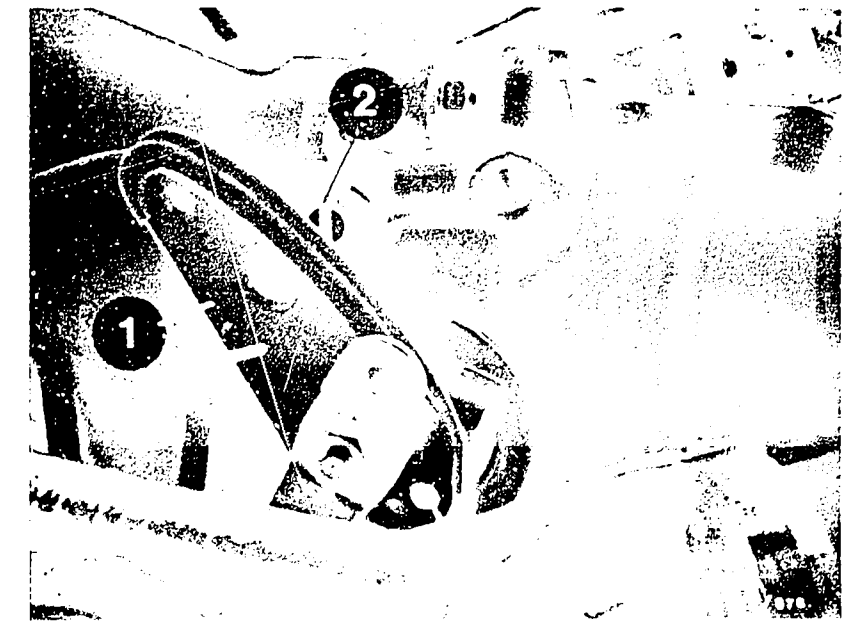
has been completed.

Has the defect been eliminated?

no

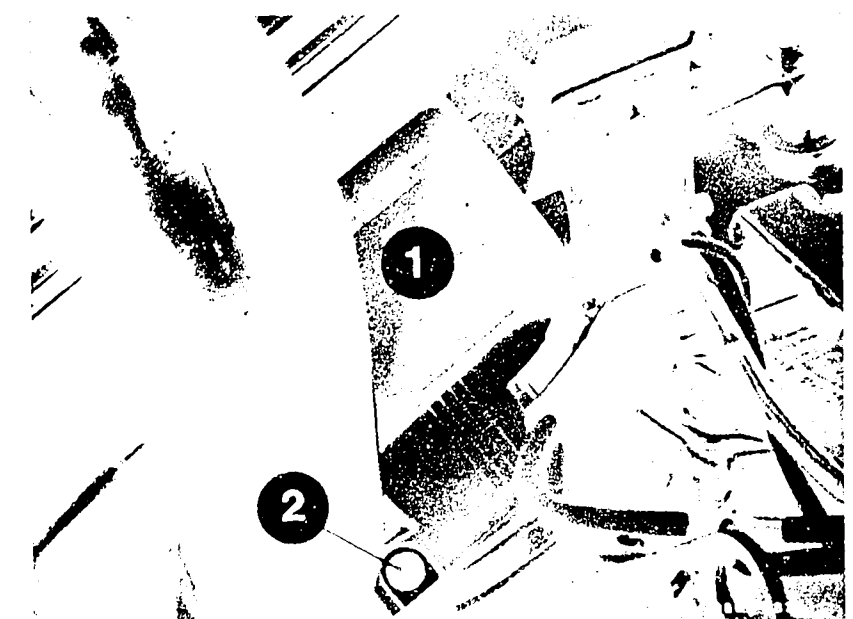
Additional possible defects:

- Customer complaint has been incorrectly identified (see Coordinates B3...B8). If the defect has not been identified using the "Targeted trouble-shooting plan", see the "Detailed trouble-shooting plan" (Coordinates B3...B4).
- The engine is not O.K. mechanically, (compression, valve setting, engine timing, wear on camshaft).



1 = Throttle valve lever
2 = Idle-speed-adjusting screw

1 = Air-flow sensor
2 = CO-adjusting screw



INSUFFICIENT MAX. POWER, OR MAX. VELOCITY

Trouble-shooting program according to customer complaint

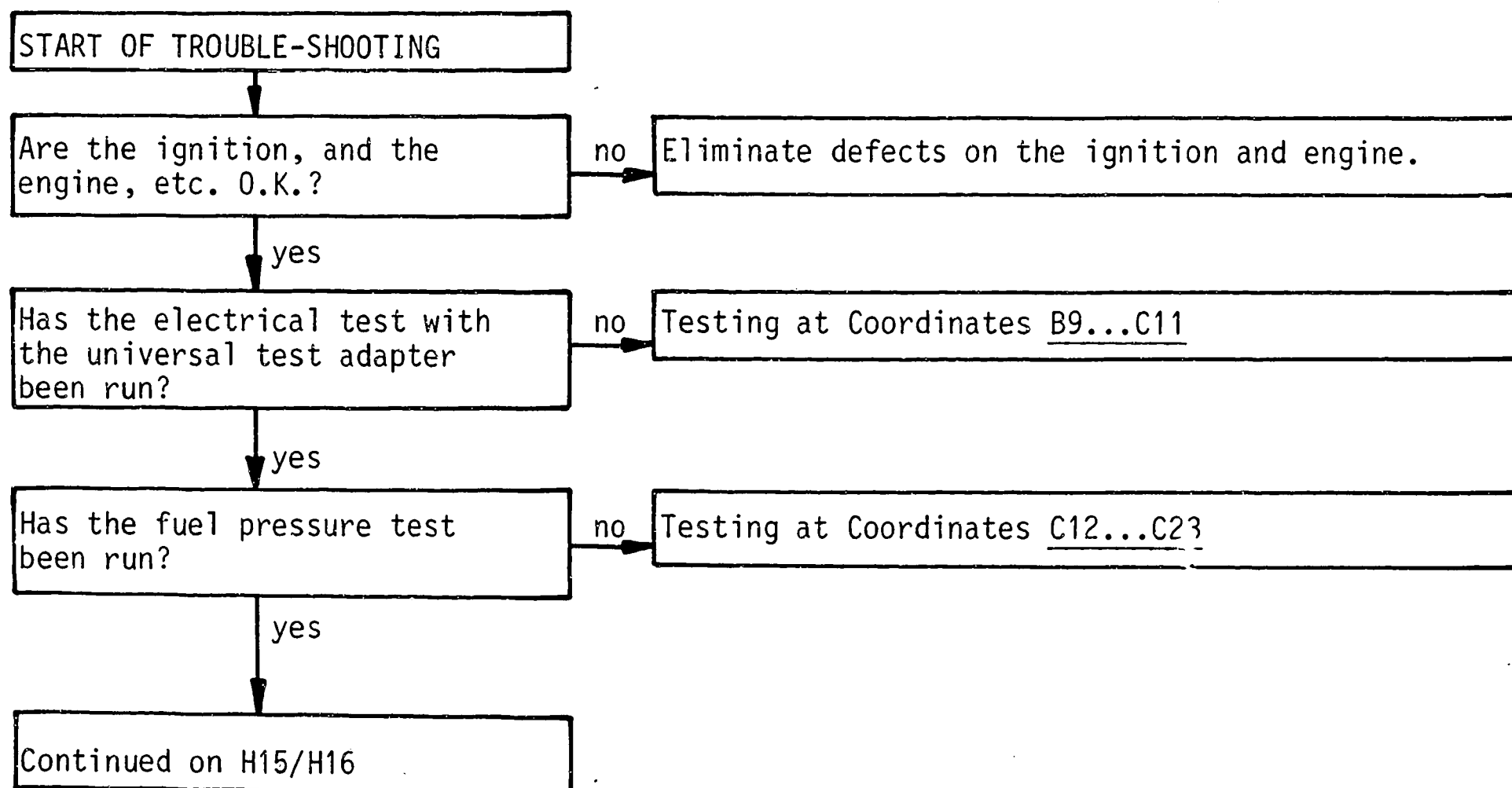
How to use the program

The testing is organized in three columns of boxes:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the tests and settings on components.
- The column at the right contains the figures that go with the text and the legend for the items in the figures.

If it is possible to answer the questions unambiguously with "yes" even without a test, proceed to the question next below.

On the other hand, if the answer is "no", and a defect is suspected, you must shift to the column of boxes in the middle and carry out the tests indicated there. After completion of the testing, the trouble-shooting is continued at that point at which that shift was made.

**H13**

Insufficient max. power
Peugeot 505 Turbo

**H14**

Insufficient max. power
Peugeot 505 Turbo



Insufficient max. power or max. velocity (continued)

yes

Does the throttle valve open all the way?

- Are the accelerator pedal, the accelerator linkage, and the accelerator cable O.K.?

no

- The accelerator linkage can jam due to the floor mat.
- If the accelerator cable is kinked, take it out and replace it.

yes

Is the exhaust catalytic converter clogged?

- Comparative measurement of CO
- Time interval for replacement of sensor

no

Comparative measurement of CO

- Take apart the sensor connector (open-loop control) and measure the CO-level after the catalytic converter (exhaust pipe end) with the engine at normal operating temperature. Note down the value.
- Unscrew the sensor, and measure the CO-level in the sensor hole in front of the catalytic converter with the engine at normal operating temperature (leaks). Note down the value.
- If the two values are approximately the same, the catalytic converter is clogged and must be taken out and replaced. If the catalytic converter is good, a CO-level less than 0.2 vol. % CO is measured at the exhaust pipe end.

Time interval for replacement of the lambda sensor approx. 50 000 km (approx. 30 000 miles). Follow instructions from supplier of original equipment!

yes

Continued on H17/H18

Installation position of the components

- Lambda sensor

In the exhaust pipe, in front of the right bulkhead.

H15

Insufficient max. power
Peugeot 505 Turbo



H16

Insufficient max. power
Peugeot 505 Turbo



Insufficient max. power or max. velocity (continued)

yes

Is the full-load signal O.K.?

- Does the length of the fuel-injection pulse change at 3500 min⁻¹ when Term. 21 and Term. 22 in the electronic ignition K-control unit are jumped?

no

- Connect test lead as follows: The two-pole connections on the test lead are inserted between one electric fuel-injection valve and its connecting lead. Of the two other connections of the test lead, only one connection terminal needs to be connected to the special input on the motortester.

Caution:

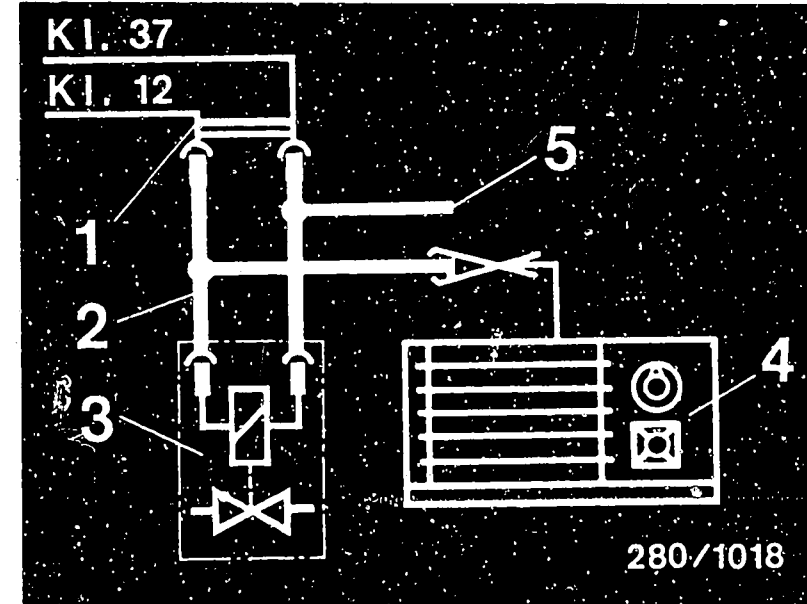
- The free connecting terminal must not make contact with the vehicle ground!
- If connected correctly, the pattern shown at the right appears on the oscilloscope. Using the test lead, the fuel-injection pulses can be checked on the electric fuel-injection valves using an ignition oscilloscope while the engine is running.
- Watch the fuel-injection pulse at 3500 min⁻¹. Jump Term. 21 and Term. 22 in the electronic ignition K-control unit plug using an auxiliary cable.

Caution!

- Do not bend any plug blades out of shape. The fuel-injection pulse must become longer. If not: Check the connecting lead Term. 3 from the control unit plug to Term. 18 of the electronic ignition K-control unit for continuity. If O.K., measure voltage at Term. 3. If there is battery voltage present, take out and replace the LU control unit. If there is no battery voltage, take out and replace the electronic ignition K-control unit.

yes

Continued on H19/H20



K1. = Term.

1 = Connecting plug for valve lead

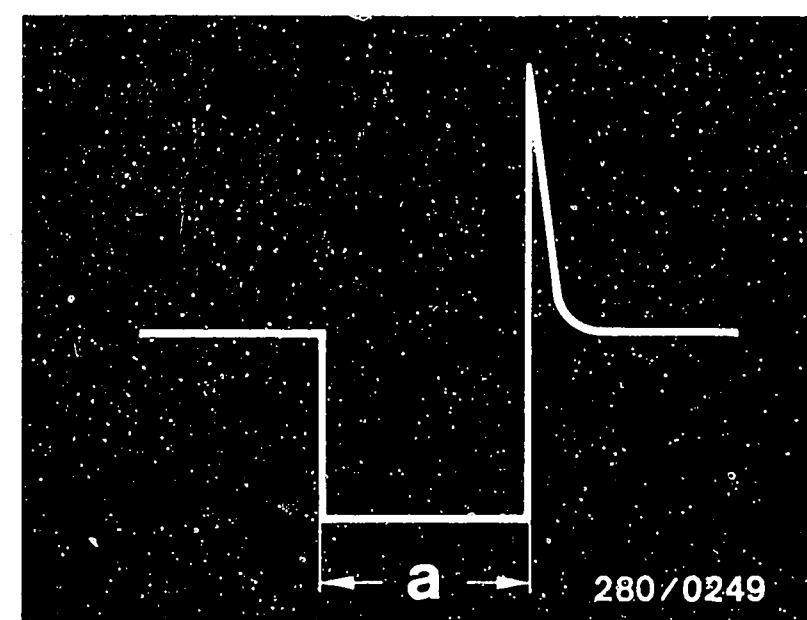
2 = Test lead 1 684 463 093

3 = Electric fuel-injection valve

4 = Motortester

5 = Free connection (do not ground!)

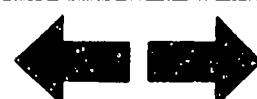
Fuel-injection pulses from a switched output stage (measured on the electric fuel-injection valve
a = Pulse length (dependent on the engine load)).



H17

Insufficient max. power

Peugeot 505 Turbo



H18

Insufficient max. power

Peugeot 505 Turbo



Insufficient max. power or max. velocity (continued)

yes

Is the fuel delivery from the electric fuel pump O.K.?

Test specification:
min. 750 cm³/30 s

no

● Measuring the fuel delivery:

To test, release the return hose from the pressure regulator and connect a separate hose line. Direct the end of the hose into a 5 l container with a measuring scale.

Disconnect the control relay. Insert a jumper between Term. 87 and Term. 30 in the connecting socket. The electric fuel pump must run.

Test specification:

min.: 750 cm³/30 s

N.B.!

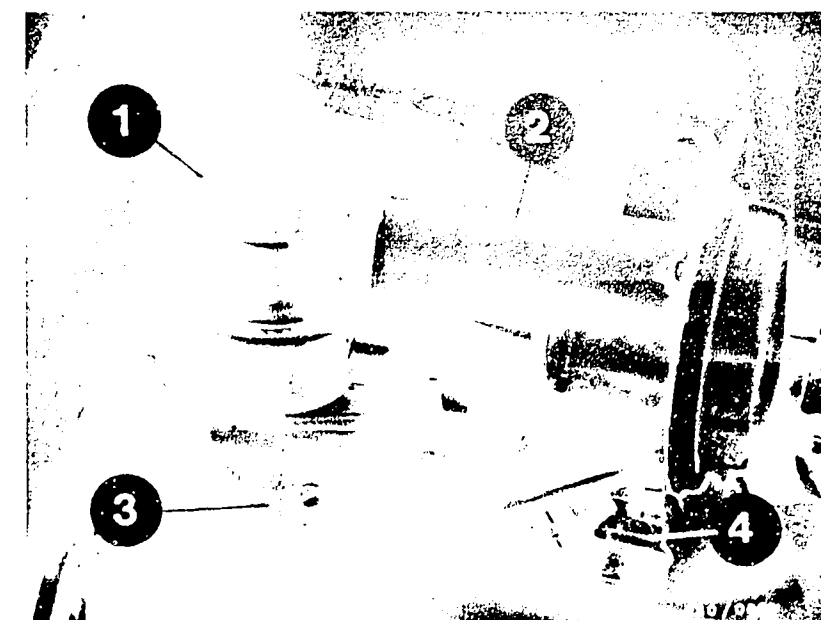
It is absolutely necessary that the jumper be removed after completion of the test.

Corrective action if test specification is not being attained:

- Fuel filter is clogged: take it out and replace it.
- Voltage at the connecting terminals of the electric fuel pump with the engine running: min. 12 V. If not, clean the contacts, eliminate any poor ground connection, take out and replace the lead.
- In-tank pre-supply pump not operating.
- Fuel pressure regulator defective: take it out and replace it (using parts kit 1 287 010 704).
- If fuel delivery too low, take out and replace the electric fuel pump.

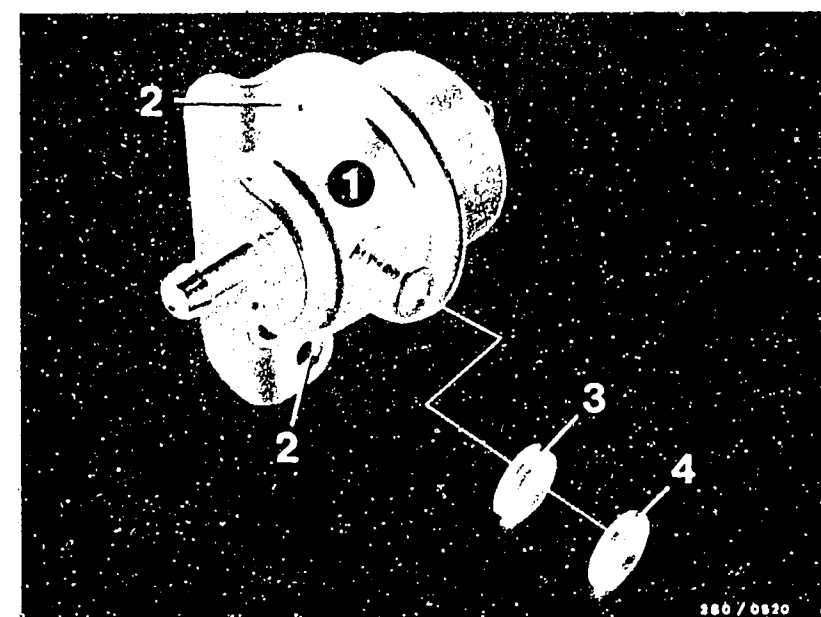
yes

Continued on H21/H22



- 1 = Pressure regulator
- 2 = Return hose
- 3 = Fuel return line
- 4 = Auxiliary-air device

- 1 = Pressure regulator
- 2 = Fastening hose
- 3 = Flat ring) Parts kit
- 4 = O-ring) 1 287 010 704



H19

Insufficient max. power

Peugeot 505 Turbo



H20

Insufficient max. power

Peugeot 505 Turbo



Insufficient max. power or max. velocity (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does the air-flow sensor flap move freely?
- Does the air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerance?

Between Term. 8 and Term. 9:

160 ... 300 Ω

Between Term. 7 and Term. 5
(deflect the air-flow sensor flap):

60 ... 1000 Ω

no

Testing:

- Unscrew the air-flow sensor from the air filter housing.
Open the air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must return on its own to the stop. The air-flow sensor flap must not stick when being opened. Watch for friction markings. If the inside of the air-flow sensor is very dirty, clean it, and rub it out with a lint-free rag. If there are friction markings, the air-flow sensor must be taken out and replaced.

- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent out of shape. The air-flow sensor must be taken out and replaced.

- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.

Test specification: 160 ... 300 Ω

Connect the ohmmeter to Term. 7 and Term. 5 of the air-flow sensor.

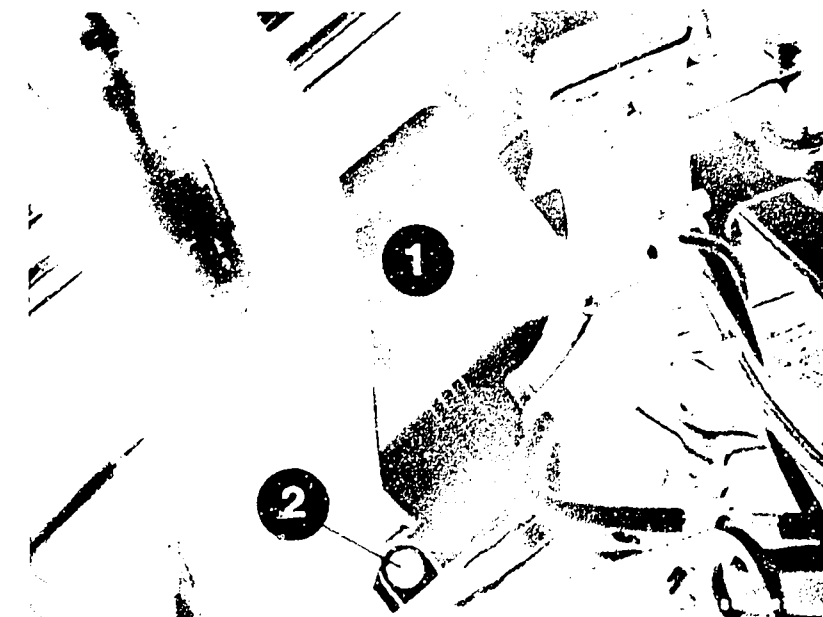
Deflect the air-flow sensor flap all the way.

Test specification: 60 ... 1000 Ω

Caution! After completion of the test, the air-flow sensor must be screwed back onto the air filter housing.

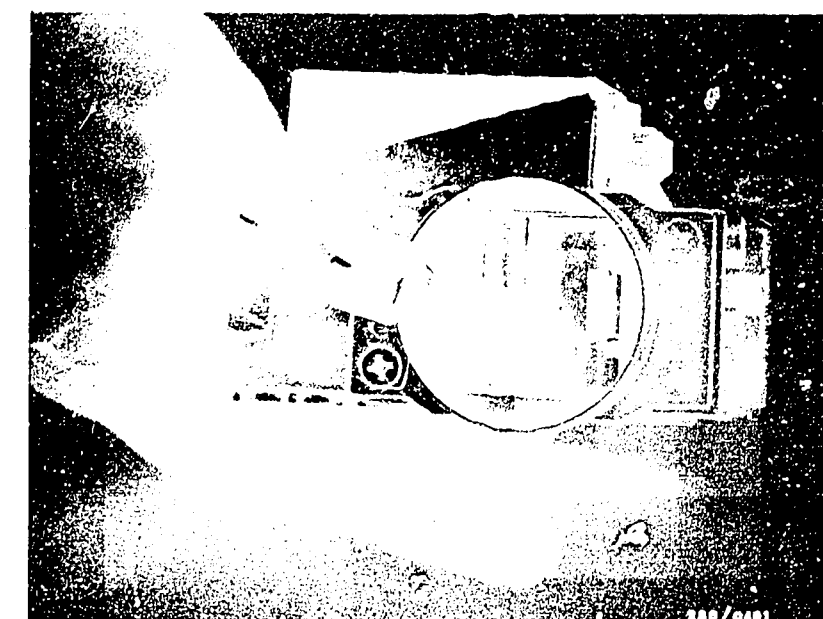
yes

Continued on H23/H24



1 = Air-flow sensor
2 = CO adjusting screw

Pressing on the sensor flap in the air-flow sensor.



H21

Insufficient max. power

Peugeot 505 Turbo



H22

Insufficient max. power

Peugeot 505 Turbo



Insufficient max. power or max. velocity (continued)

yes

Are all hoses correctly put on, without kinking or damage? Visual inspection.

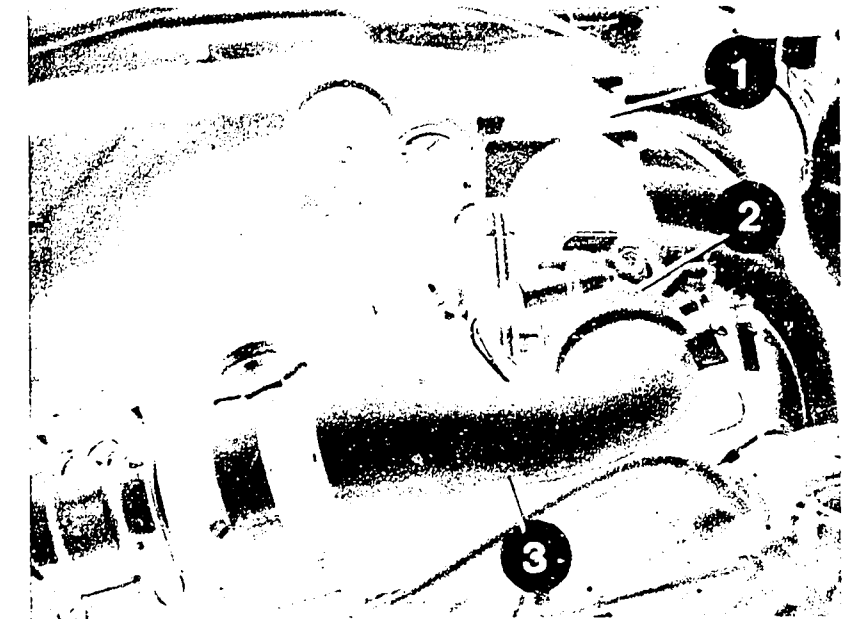
- Has the air intake system been tested for leaks with 0.3 bar gauge pressure?

no

- Check that all the hoses on the air intake system and the fuel line system are put on correctly without kinking or damage. If need be, take out and replace hoses. Eliminate leaks by using new seals or by tightening the connecting screws.
- Testing for leaks:
Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Take off the hose after the auxiliary-air device and, using a compressed air gun, blow air (0.3 bar gauge pressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve all the way. Brush or spray all seal locations with soapy water. Leaks can also occur at the following points on the engine: The oil dipstick is not inserted firmly, defective cover seal for the oil filler neck, etc. Bubbling or foaming indicates leaks.

yes

Continued on J1/J2



- 1 = Intake manifold
- 2 = Throttle-valve assembly
- 3 = Air guide pipe

H23

Insufficient max. power
Peugeot 505 Turbo



H24

Insufficient max. power
Peugeot 505 Turbo



Insufficient max. power or max. velocity (continued)

yes

The trouble-shooting program
for the customer complaint

"Insufficient max. power or
max. velocity,"

has been completed.

Has the defect been eliminated?

no

Additional possible defects:

- Customer complaint has been incorrectly identified (see Coordinates B3...B8).
If the defect has not been identified using the "Targeted trouble-shooting plan", see the "Detailed trouble-shooting plan" (Coordinates B3...B4).
- The engine is not O.K. mechanically, (compression, valve setting, engine timing, wear on camshaft, turbocharger or blow-off valve).

J1

Insufficient max. power
Peugeot 505 Turbo



J2

Insufficient max. power
Peugeot 505 Turbo



IDLE SPEED AND CO-LEVEL TOO LOW OR TOO HIGH

Trouble-shooting program according to customer complaint

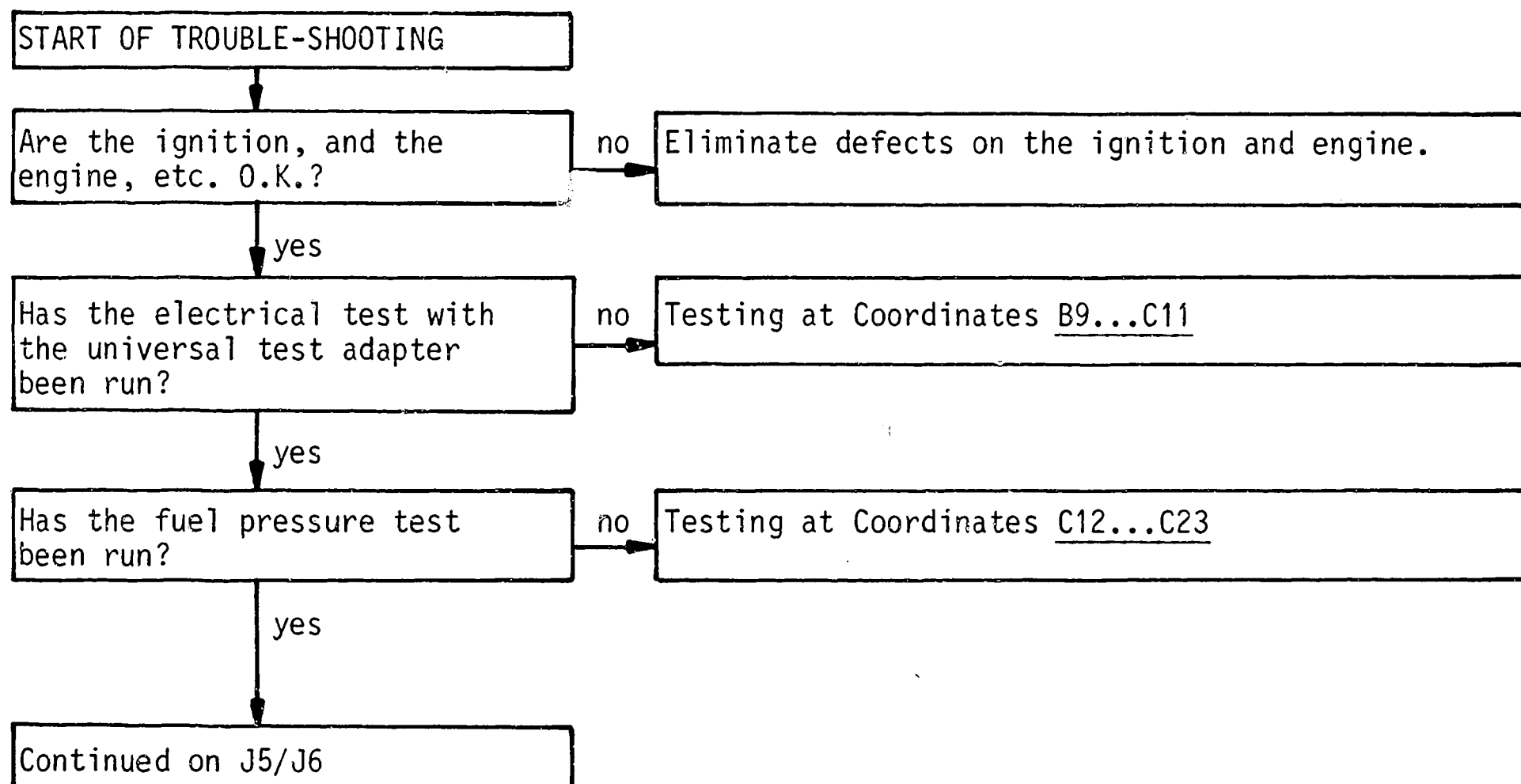
How to use the program

The testing is organized in three columns of boxes:

- The column at the left contains the questions for the tests being run.
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- The column at the right contains the figures that go with the text and the legend for the items in the figures.

If it is possible to answer the questions unambiguously with "yes" even without a test, proceed to the question next below.

On the other hand, if the answer is "no", and a defect is suspected, you must shift to the column of boxes in the middle and carry out the tests indicated there. After completion of the testing, the trouble-shooting is continued at that point at which that shift was made.



J3

Idle speed and CO-adjustment
Peugeot 505 Turbo



J4

Idle speed and CO-adjustment
Peugeot 505 Turbo



Idle speed and CO-level too low or too high (continued)

yes

Have the idle speed and the CO been correctly set?

no

Idle speed and CO adjustment:

Exhaust adjustment using the lambda closed-loop control tester with engine at normal operating temperature and at idle speed.

- Idle speed 850 ... 950 min⁻¹
- CO adjustment using the lambda integrator voltage

Lambda closed-loop control:

Closed loop control operation (sensor connected):

Reading for voltage fluctuates between two values.

Open-loop control operation (sensor lead taken apart):

Reading for voltage must be equal to the average of the fluctuating values.

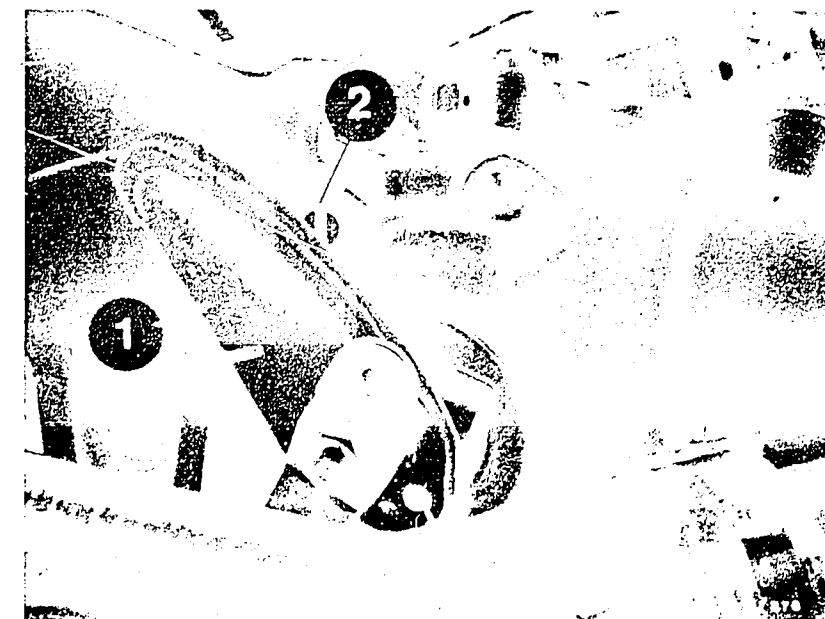
If not, adjust the bypass screw (CO-adjusting screw) in the air-flow sensor (socket hex screw, AF = 5 mm). Recheck the idle speed and the reading for voltage. If need be, make the corrections in several steps.

After adjustment, put in a new seal (1 283 123 004).

Idle speed cannot be set.

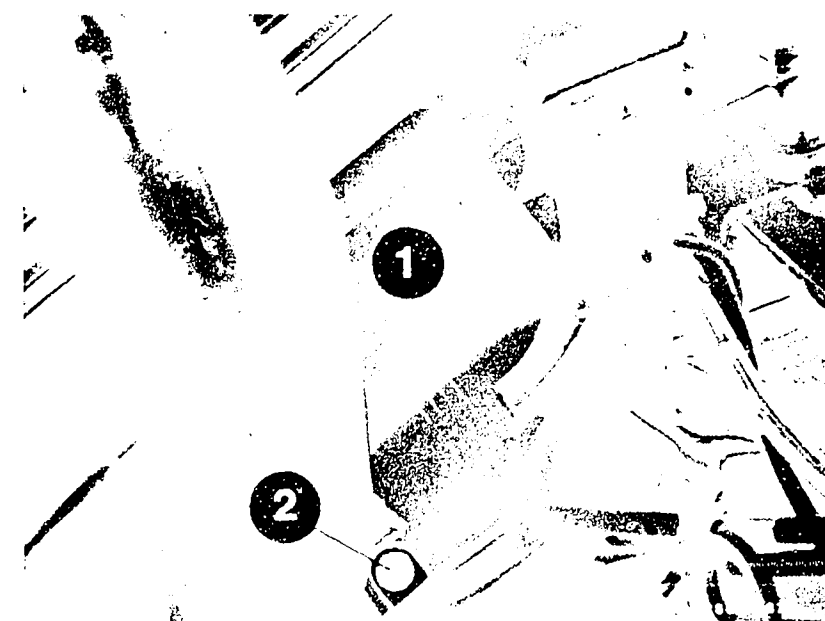
yes

Continued on J7/J8



1 = Throttle valve lever
2 = Idle-speed-adjusting screw

1 = Air-flow sensor
2 = CO-adjusting screw



J5

Idle speed and CO-adjustment
Peugeot 505 Turbo

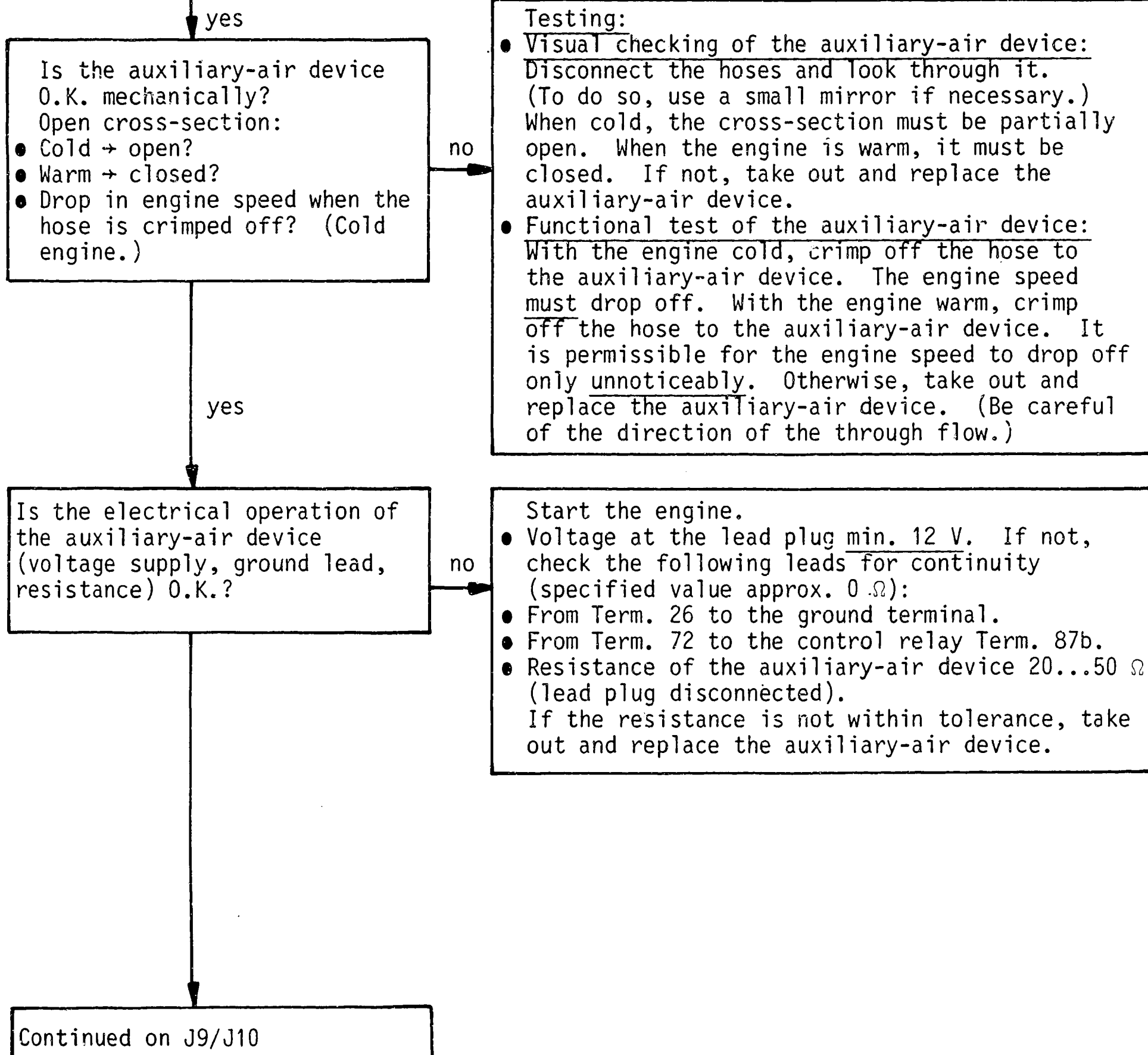


J6

Idle speed and CO-adjustment
Peugeot 505 Turbo



Idle speed and CO-level too low or too high (continued)



1 = Auxiliary-air device

J7

Idle speed and CO-adjustment
Peugeot 505 Turbo



J8

Idle speed and CO-adjustment
Peugeot 505 Turbo



Idle speed and CO-level too low or too high (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does the air-flow sensor flap move freely?
- Does the air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerance?

Between Term. 8 and Term. 9:

160 ... 300 Ω

Between Term. 7 and Term. 5
(deflect the air-flow sensor flap):

60 ... 1000 Ω

no

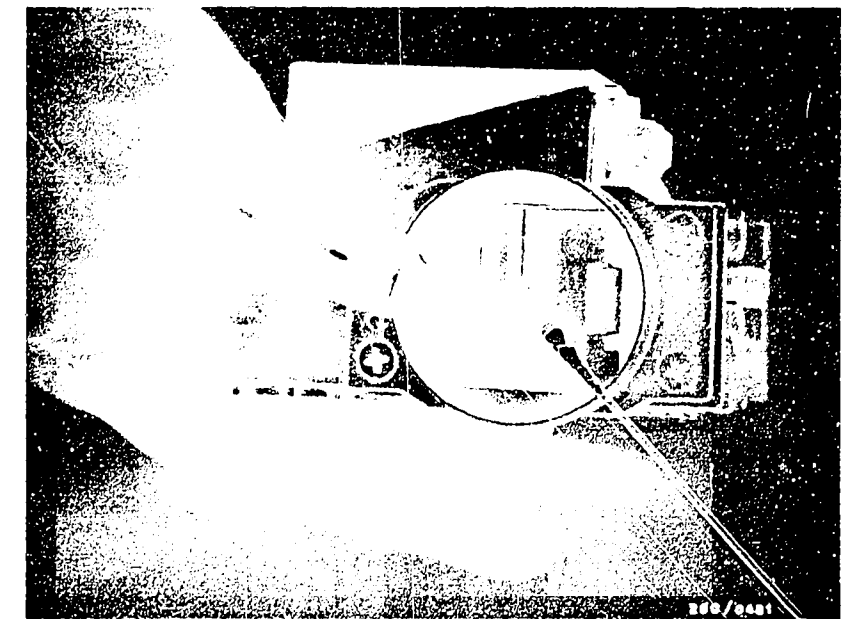
Testing:

- Unscrew the air-flow sensor from the air filter housing.
Open the air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must return on its own to the stop. The air-flow sensor flap must not stick when being opened. Watch for friction markings. If the inside of the air-flow sensor is very dirty, clean it, and rub it out with a lint-free rag. If there are friction markings, the air-flow sensor must be taken out and replaced.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent out of shape. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specification: 160 ... 300 Ω
Connect the ohmmeter to Term. 7 and Term. 5 of the air-flow sensor.
Deflect the air-flow sensor flap all the way.
Test specification: 60 ... 1000 Ω

Caution! After completion of the test, the air-flow sensor must be screwed back onto the air filter housing.

yes

Continued on J11/J12



Pressing on the sensor flap in the air-flow sensor.

J9

Idle speed and CO-adjustment
Peugeot 505 Turbo



J10

Idle speed and CO-adjustment
Peugeot 505 Turbo



Idle speed and CO-level too low or too high (continued)

yes

Is the electric starting valve O.K. with regard to leaks?

- Max. allowable 1 drop/min.

no

- Checking the electric starting valve for leaks:
- Taken out
Take the electric starting valve out. (Caution: Fire hazard!) The fuel and electrical lines remain connected. (Place a collector basin under the electric starting valve.) Build up the fuel pressure. Pull the control relay from the socket and jump Term. 30 and Term. 87 with a jumper cable.

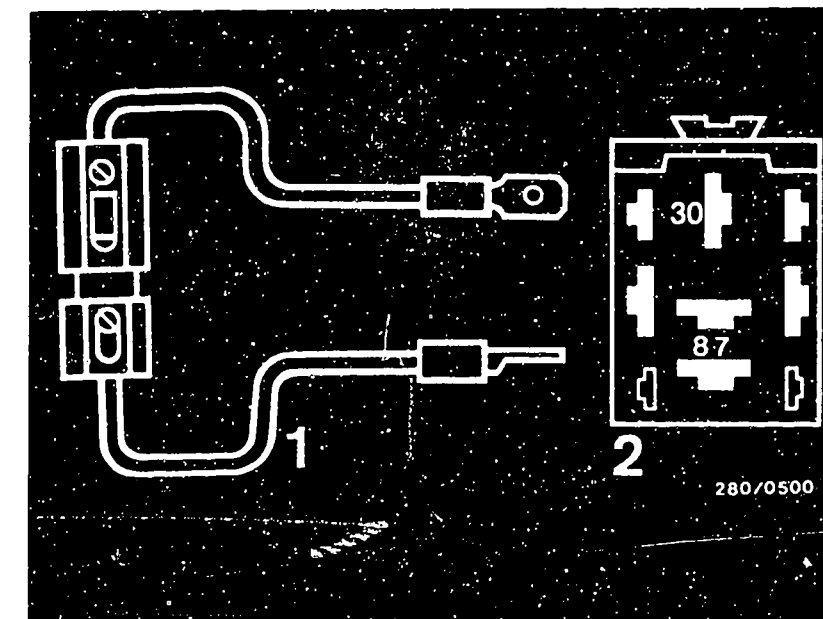
Test specification: A max. of 1 drop is permissible at the opening of the valve within one minute.

Caution!

After completion of the test, remove the jumper and plug the control relay back into the connecting socket.

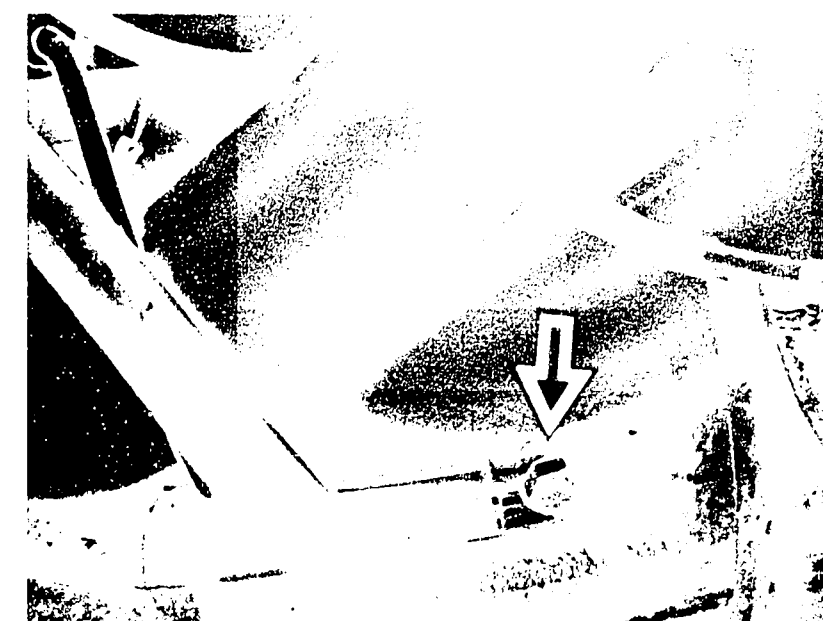
yes

Continued on J13/J14



Jumper cable (user-fabricated)
1 = Fuse holder with 10 A fuse
2 = Top view of connection socket

Arrow = Electric starting valve



J11

Idle speed and CO-adjustment
Peugeot 505 Turbo

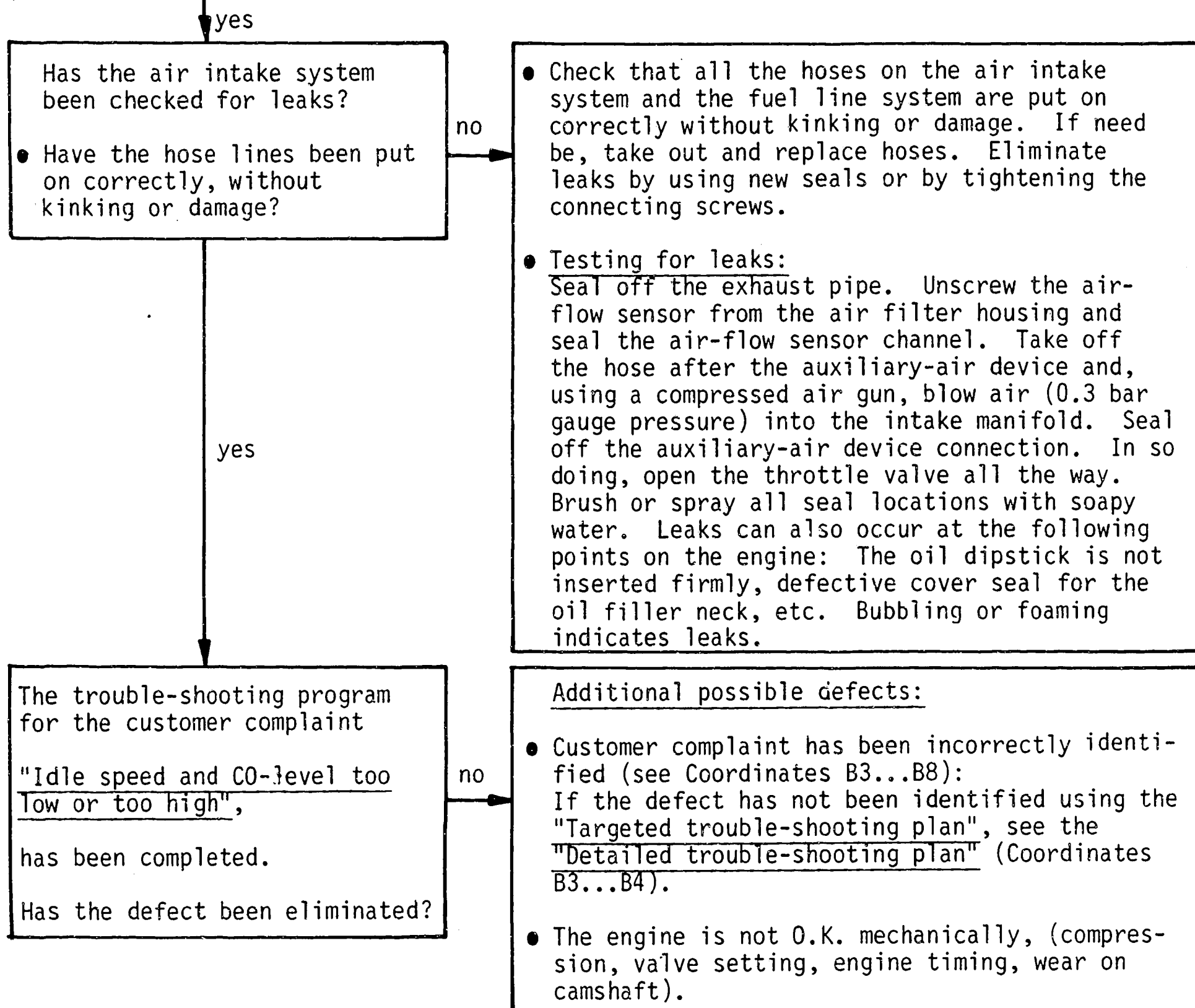


J12

Idle speed and CO-adjustment
Peugeot 505 Turbo



Idle speed and CO-level too low or too high (continued)



1 = Auxiliary-air device



After-sales Service

Technical Bulletin

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DETERMINATION OF THE TEMPERATURE VALUES
GIVEN IN L-JETRONIC MANUALS

VCT-1-280/108 En
5.1982

We have recently been asked with increasing regularity how accurately the engine temperature must be measured when trouble-shooting on the vehicle.

So far in its L-Jetronic manuals KH/VSK has given three or four different temperatures for testing the temperature sensor:

-10 °C, +20 °C, +40 °C and +80 °C,

and two ranges for the thermo-time switch e.g. 35 °C 8 sec.

below +30 °C and above +40 °C.

Since the temperature range need not be subject to such close tolerances, we propose in future the following more appropriate definition:

- Ambient temperature (approx. +15 °C to +30 °C)
- Engine at normal operating temperature (approx. +80 °C).

Please direct questions and comments concerning the contents to our authorized representative in your country.

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
Postfach 50, 7000 Stuttgart 1, Federal Republic of Germany.
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N1

Technical Bulletins

Peugeot 505 Turbo



After-sales Service

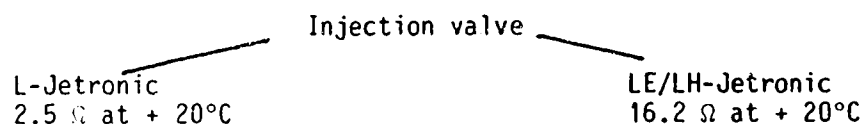
Technical Bulletin

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CODING OF LE/LH-JETRONIC
SOLENOID-OPERATED INJECTION VALVES

VDT-I-280/109 En
5.1982

With the introduction of the LE/LH-Jetronic the internal resistance of the solenoid-operated injection valves has also been changed.



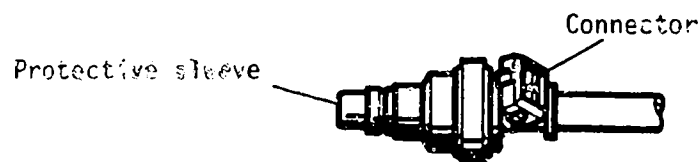
The connector has been left the same for cost reasons and to meet customer wishes.

Caution!

If L-Jetronic injection valves are installed in an LE/LH-Jetronic vehicle, either the control unit or the injection valves will suffer irreparable damage.

Note:

- Install only injection valves with the part number designated for the vehicle.
- As a guide, injection valves with 16.2 Ω internal resistance have a yellow protective sleeve.



- A colour coding (yellow) of the connector (see also VDT-I-280/5) is not generally intended for LE/LH-Jetronic injection valves.

Please direct questions and comments concerning the contents to our authorized representative in your country.

BOSCH

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N2

Technical Bulletins

Peugeot 505 Turbo



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VDT-I-280/110 En

6.1983

PARTS SET FOR INJECTION VALVES

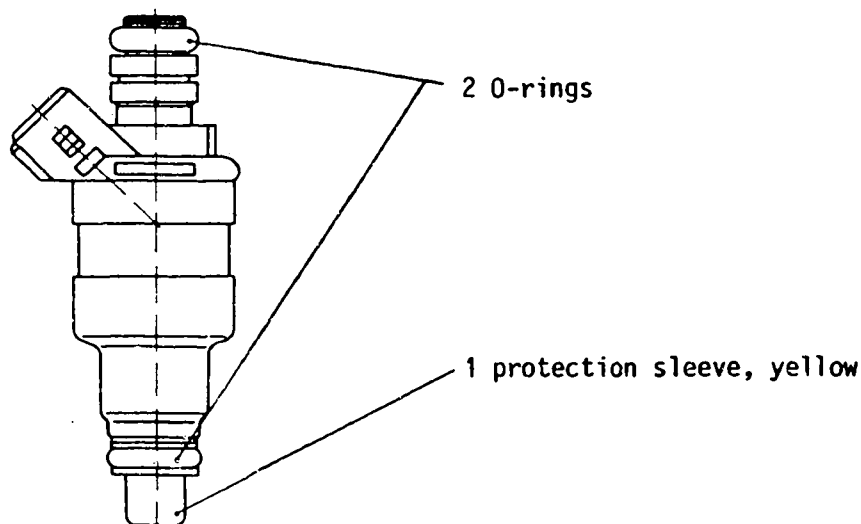
Supersedes 6.1982 edition

0 280 150 2..

AND PRESSURE REGULATORS 0 280 160 2..

A common parts set is available for the L-Jetronic/LE-Jetronic solenoid-operated injection valves and pressure regulators with the new method of connection.

Contents for 1 injection valve:



Contents for 1 pressure regulator:

1 O-ring

1 supporting plate

Since the above-mentioned parts are subjected to extreme temperature stress, they should be exchanged for new parts whenever servicing is carried out.

"Unmetered air" sucked in through injection-valve seals which are not tight, is a frequent case for servicing.

The parts set has the part number 1 287 010 704 and will in future be listed in the service parts microfiche under solenoid-operated injection valves (see EE 00 under 0 280...).

Please direct questions and comments concerning the contents to our authorized representative in your country.

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Technical Bulletins

Peugeot 505 Turbo



Information Technique

Utilisation réservée à l'organisation interne Bosch. Communication à un tiers non autorisée.

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FICHES ET PRISES POUR COMPOSANTS

VDT-I-280/111 Fr

JETRONIC

11.1984

Jeux de pièces

Remplace éd. 11.1982

Des jeux de pièces, comprenant les éléments suivants, peuvent être livrés en cas de remplacement des fiches et prises du système Jetronic :

- Boîtier de connexion
- Capuchon de protection (oeillet en caoutchouc)
- Ressorts de contact

Ces jeux sont répertoriés sur la microfiche EE...*.

* voir microfiche EE00 sous 0 280 ..

- Fiche noire à deux contacts,
jeu de pièces 1 287 013 002 connecteur avec prise femelle à deux contacts

- Prise femelle noire à deux contacts,
jeu de pièces 1 287 013 001 pour par exemple :

sondes de température	0 280 130 0..
commandes d'air additionnel	0 280 140 ..
thermocontacts temporisés	0 280 130 2..
injecteurs de départ à froid	0 280 170 ..
correcteurs de réchauffage	0 438 140 ..

- Prise femelle grise à deux contacts,
jeu de pièces 1 287 013 003 pour :

injecteurs électromagnétiques 0 280 150 ..

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Technical Bulletins

Peugeot 505 Turbo



- Prise femelle noire à trois contacts,
jeu de pièces 1 237 000 039 pour :

contacteurs de papillon 0 280 120 ..

- Prise femelle noire à cinq contacts,
jeu de pièces 1 287 013 006 pour :

débitmètres d'air 0 280 20. .. (vers. LE)

- Prise femelle noire à six contacts,
jeu de pièces 1 287 013 004 pour :

débitmètres d'air 0 280 200 ..

- Prise femelle noire à sept contacts,
jeu de pièces 1 287 013 005 pour :

débitmètres d'air 0 280 20. ..

débitmètres d'air 0 280 211 ..

- Connecteur de faisceau de câbles noir à 25 contacts,
jeu de pièces 1 287 013 009 pour :

centrales de commande 0 280 0..

- Connecteur de faisceau de câbles noir à 35 contacts,
jeu de pièces 1 287 013 008 pour :

centrales de commande 0 280 0..

Les ressorts de contact (Minitimer) sont également livrables séparément sous la référence 1 284 477 026.

Les boîtiers de connexion ne sont livrables que dans les couleurs indiquées.

En dehors de la République fédérale d'Allemagne, prière de s'adresser à la représentation RG/AV du pays considéré.



After-sales Service

Technical Bulletin

Only for use within the Bosch organization. Not to be communicated to any third party.

Parts Cleaning

Use of highly-inflammable cleaning agents, or cleaning agents which are dangerous to health

Gen.

VDT-I-Gen./18 En
7. 1978

When cleaning parts which come from vehicle electrical products prior to repair, it is permitted to use the following cleaning agents: Benzine, trichloethylene (tri) and perchloroethylene (per). These are dangerous, and must be handled with appropriate care. The relevant safety regulations in West Germany are:

Regulations concerning work with inflammable liquids
(VbF) issued by the Federal Labor Ministry (BmA).

Safety regulations for the use of chlorinated hydrocarbons

as applied to the works ZH1/222

as applied to personnel ZH1/119

as issued by the Federation of the Trade co-operative Associations
(Central Association for Accident Prevention and Industrial Medicine)
Langartweg 103, D-5300 Bonn 5).

1. Benzine, acetone and ethanol (ethyl alcohol) are inflammable liquids and their mixtures with air are dangerous due to the risk of explosion. Parts washing may only take place in tanks or containers solely intended for this purpose and equipped with a "melt" safety device for the lid which, in case the liquid catches fire, causes the lid to close automatically and smother the fire. In the case of larger containers (exceeding 500 x 500mm) some form of suction extraction must be provided.
- 1.1 Generators, alternators, wiper motors, small-power motors and other electrical equipment for installation in vehicles are, in ever increasing numbers, being equipped with capacitors having long storage times (e.g. for interference-suppression purposes in radio-receiver or transmitter installations).

When washing such parts, it is possible that a capacitor discharge can occur when the part is immersed in the cleaning agent. This can lead to an inflammable liquid catching fire. For this reason, parts on which a capacitor is fitted are only to be washed in trichlorethylene (tri) or perchloroethylene (per).

- 1.2 In the case of starting motors, it has already been pointed out in earlier repair instructions that the parts should be thoroughly dried after washing in benzine, this applies particularly to windings. With sliding-gear starting motors, the first test run after washing out must be performed without the closure cap in order to avoid the possibility of explosion.

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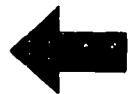
Technical Bulletins

Peugeot 505 Turbo



2. Trichlorethylene (tri) and perchloroethylene (per) are both liquids whose vapors have a stupefying effect, and which are dangerous to health if inhaled over long periods. Tri vapor is heavier than air, and therefore especially dangerous at floor level. Gloves and goggles are to be worn when washing out parts in these liquids.

If cleaning of parts is carried out regularly, or continuously, in trichlorethylene only containers or tanks intended solely for this purpose are to be used, and the suction extraction device is to be switched on. When washing parts do not bend over the container.



After-sales Service

Motor Vehicle Service Information

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LIQUID PETROLEUM GAS (AUTOGAS) SYSTEMS AND
VEHICLES WITH K-JETRONIC

VDT-I-Gen. 052 En
10.1982

Fitting at a later stage

Vehicles with K or L-Jetronic are not suitable for fitting at a later stage with liquid petroleum gas (LPG) systems.

Numerous problems can occur, such as:

- Reduction of fuel flow through the injection valves due to deposits
- Stiffness or blocking of the K-Jetronic fuel distributor plunger (due to gumming or similar) in the course of time with "gas only operation."
- Increased danger of backfiring in the intake manifold (burbling) and thereby damage to the air-flow sensor.

Guarantee

Guarantee claims for failed Jetronic components from vehicles thus converted will not be accepted.

Conversion to liquid gas operation is made at the risk of the vehicle owner.

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Motor Vehicle Service Information

Peugeot 505 Turbo



After-sales Service

Motor Vehicle Service Information

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UNIVERSAL TEST ADAPTER

VDT-I-Gen. 1001 En
1.1982

1. Application

The multiplicity of different fuel-injection and ignition systems at present available on the market, as well as the advances in development which can be expected in the future, demand a new testing concept. In order to maintain the outlay for test equipment, and hence the costs, at a reasonable limit we have developed the universal test adapter.

The following systems can be tested using a test-adapter universal unit together with adapter leads suited to the system in question:

1.1 Systems which are already being fitted as series:

- L-Jetronic (1st generation)
- LE-Jetronic (2nd-generation L-Jetronic)
- Motronic (with the new connector designation, refer to the vehicle-specific instructions!)

1.2 Systems whose introduction is planned:

- Motronic with gearbox control
- KE-Jetronic
- Mono-Jetronic
- Electronic ignition system with ignition map (EZF)

2. Delivery dates and Part Numbers

Available as from 2.1982.

2.1 Universal test adapter (basic unit)

Part Number: 0 684 101 801

Designation: ETT 018.01

2.2 System adapter lead for LE-Jetronic (2nd-generation L-Jetronic)

Part Number 1 684 463 123

First application: For BMW 2.5/2.8 1 engines as from 9.1981, and for Opel 2.0 1 engines (Manta/Rekord) as from 9.1981.

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2.3 System adapter lead for Motronic with new connector assignment.

(Refer to the vehicle-related instructions!)

Part Number : 1 684 463 124

First application: Porsche 944 as from series production, BMW as from about 3.1982 (Europe)

2.4 System adapter lead for L-Jetronic (in preparation)

Further system adapter leads will be made available along with the introduction of the new systems as mentioned above.

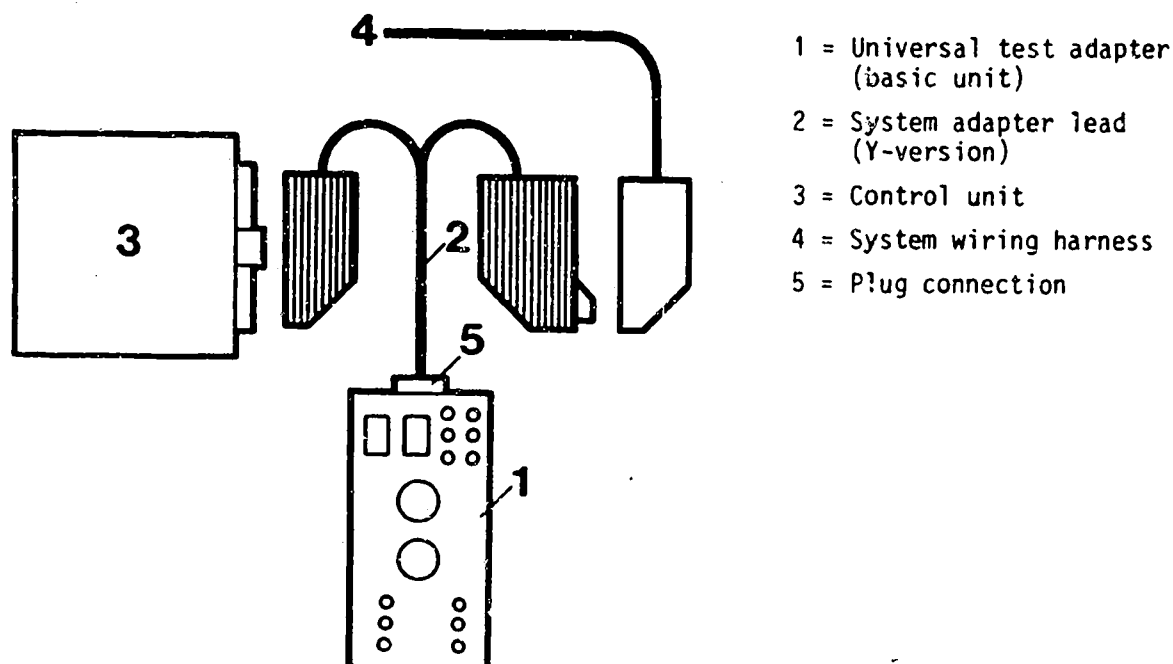
3. Testing procedure

The systems and the components are tested for voltage and resistance values as well as for correct functioning. Evaluation is by means of a multimeter and the Motortester which are connected into the universal test adapter.

Depending upon the complexity of the system, interchangeable adapter lead model 1 or model 2 is provided:

3.1 Adapter lead for peripheral and function testing (Model 1)

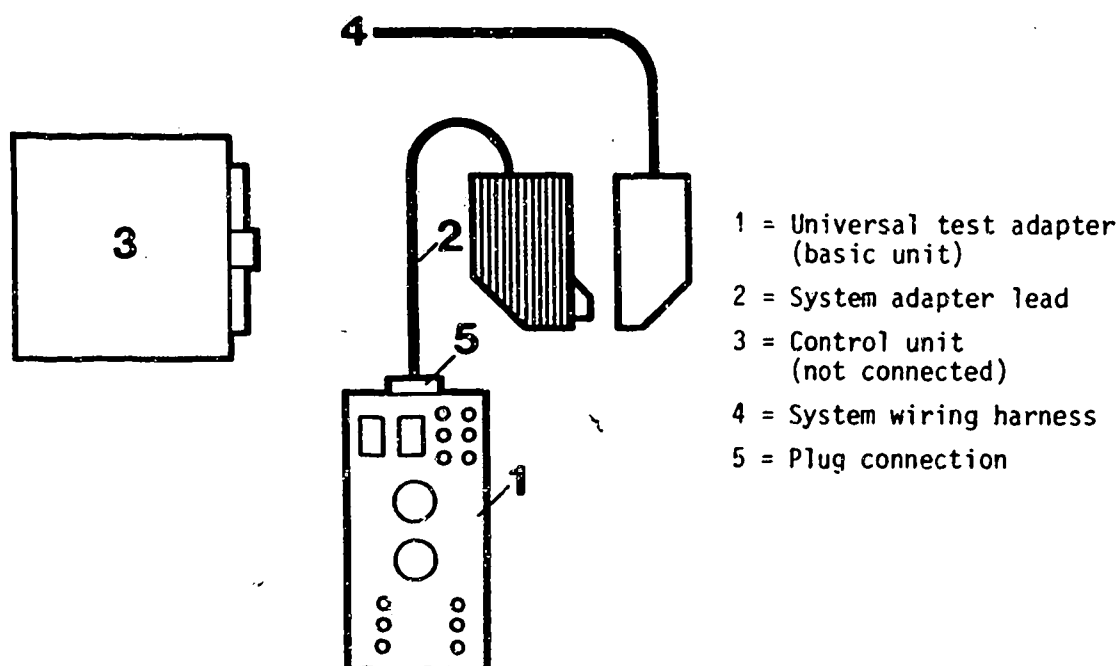
The universal test adapter together with the system adapter lead is to be connected to the system wiring harness and to the control unit (e.g. Motronic).
To be tested: Wiring harness with components and control unit.



3.2 Adapter lead for peripheral testing (Model 2)

The universal test adapter with system adapter lead, is only to be connected to the system wiring harness (e.g. LE-Jetronic (2nd-generation L-Jetronic)).

To be tested: Wiring harness with components (without control unit).

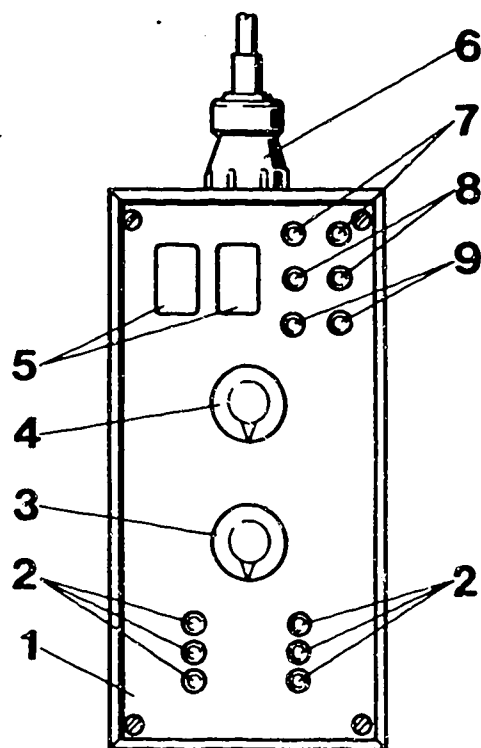


4. Construction of the universal test adapters

The universal test adapter is fitted with 2 program switches footlage and resistance measurement. The measured values are displayed on the multimeter connected to the universal test adapter. For reasons of safety, the voltage and resistance sockets are separated. In order to measure signals (e.g. injection pulses, ignition pulses), it is necessary to connect a Motortester to the measuring cavities (special input).

When carrying out functional tests with the control unit connected, selected push-buttons are pressed in a number of test-program steps in order to simulate a variety of different engine operating conditions the influence of which is evaluated using the Motortester.





- 1 = Universal test adapter (basic unit)
- 2 = Keyboard for simulation of various conditions e.g. engine temperature, throttle position etc.
- 3 = Program switch "Ohm" for resistance measurement
- 4 = Program switch "Volt" for voltage measurement
- 5 = Measurement "cavities" (for the special input from the Motortester)
- 6 = 6-pole plug-in connection for connecting the system adapter lead
- 7 = Measurement sockets (voltage measurement with a multimeter or with the Motortester)
- 8 = Measurement sockets (resistance measurement with the multimeter)
- 9 = Sockets for special functions (not yet allocated)

Notes:

1. The Motronic test adapter (0 684 101 800, ETT 018.00) will continue to be used for Motronic-equipped BMW vehicles (with old connector assignment) up to about year of manufacture 3.1982 (refer to vehicle-specific instructions).
2. Details on the operation of the universal test adapter, and the test specs, are to be found in the vehicle-specific after-sales service instructions.

3. Caution! Change of Part Number:

On the SIS-microfiches OPE-00/J22 (Coordinates A14 and A17) the new Part Numbers are as follows:

Universal test adapter: 0 684 101 801

Adapter lead : 1 684 463 123



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